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ABSTRACT

Training indicators are functional suites of quantitative and qualitative indicators of current or future vocational education and training (VET) supply and demand. The training indicators approach to educational planning considers indicators of present and likely future conditions for skilled labor and forms judgments about the most appropriate courses of action to improve skilled labor outcomes. The use of training indicators to make decisions related to VET policy and programs in Australia at the commonwealth, state, and other levels was reviewed. The review established that the training indicators approach has proved valuable, especially when it successfully synthesizes major demand-side and supply-side training indicators or derives actual measures comparing training demand to training supply. A range of supply and demand training indicators was being used in national and state VET planning and region-industry planning, and evidence of persistent demand for training indicators was found. Twenty-six training demand, training supply, and derived training measures were proposed for assessing changing VET demand at the national, state, and regional levels. Thirteen recommendations were presented regarding good practice in using training indicators, developing the range of training indicators, improving the implementation of the initiative Key Performance Measure 2, and improving the dissemination of training indicators. (Contains 110 references.) (MN)

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List of acronyms

ABS	Australian Bureau of Statistics
ACER	Australian Council for Educational Research
ACT	Australian Capital Territory
AEC	Australian Education Council
AGPS	Australian Government Publishing Service
ANTA	Australian National Training Authority
ANZSIC	Australian and New Zealand Standard Industrial Classification
AQF	Australian Qualifications Framework
ASCED	Australian Standard Classification of Education
ASCO	Australian Standard Classification of Occupations
AVETMISS	Australian Vocational Education and Training Management Information Statistical Standard
BVET	Board of Vocational Education and Training (New South Wales)
CCTE	Chamber of Commerce, Training and Enterprise (United Kingdom)
CLMR	Centre for Labour Market Research (Murdoch University, WA)
DEET	Department of Employment, Education and Training
DEETYA	Department of Employment, Education, Training and Youth Affairs
DEIR	Department of Employment and Industrial Relations
DETE	Department of Education, Training and Employment (SA)
DETIR	Department of Employment, Training and Industrial Relations (Queensland)
DETYA	Department of Education, Training and Youth Affairs
DEWRSB	Department of Employment, Workplace Relations and Small Business
DEYA	Department of Employment and Youth Affairs

DOLAC	Departments of Labour Advisory Committee (Commonwealth-State)
DTE	Department of Training and Employment (WA)
GCCA	Graduate Careers Council of Australia
GREAT	Group for Research in Employment and Training (Charles Sturt University, NSW)
ITAB	Industry Training Advisory Body (or Board)
KPM	key performance measure (for VET)
NAC	New Apprenticeships Centre
NCVER	National Centre for Vocational Education Research
NSW	New South Wales
OECD	Organisation for Economic Co-operation and Development (based in Paris)
OTFE	Office of Training and Further Education (Victoria)
OVET	Office of Vocational Education and Training (Tasmania)
OZJAC	Australian Jobs and Courses (Directory)
RERU	Regional Economic Research Unit (Charles Sturt University, New South Wales)
SA	South Australia
TAFE	technical and further education
TEC	Training and Enterprise Council (United Kingdom)
VET	vocational education and training
WA	Western Australia

Note: If not otherwise indicated, departments are Commonwealth departments.

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Executive summary

In response to the need for information about labour market changes, skill shortages, and social and economic indicators, this report has attempted to develop training indicators for vocational education and training (VET) policy and providers. It follows from a critique, published by the National Centre for Vocational Education Research (NCVER), of various approaches to measuring the adequacy of the stock of VET skills, a key performance measure for the VET system as a whole.

Training indicators are taken to mean functional suites of quantitative and qualitative indicators of current or future VET supply and demand, potentially including economic, social, labour market, training, and other indicators, which governments, enterprises, training providers or individuals may bring together to guide decisions about investments for skill training, especially at the industry, occupational, regional and course levels.

In that sense, training indicators are crucial to the VET planning cycle. To implement the National Strategy for VET and give best effect to the pool of VET funds, the Australian National Training Authority (ANTA) and State and Territory Governments use a wide range of training indicators in developing and reviewing their VET plans. Training indicators are an important NCVER area of interest, particularly in terms of key publications on enrolments, apprenticeships and traineeships, and student outcomes.

The report begins with recent developments in the training system and the training market. Information relating to the national strategy and key performance measures (KPMs) for VET follows. The current strategy's market emphases, and the new diversity of training providers and pathways to skills, are taken to imply increasing needs for diversified training information to improve the operation of the market.

The report describes and classifies major Commonwealth, State and other uses of training indicators since the 1970s—for youth education and training, training policy, skilled migration, job placement needs and vocational guidance. The overall assessment is that this work has proved its worth for policy and program purposes, especially when it successfully synthesises major demand-side and supply-side training indicators, or derives actual measures that compare training demand to training supply.

Various 1990s initiatives in the VET sector (new employer and student surveys) and in employment and education (new job outlook and student information programs) are seen to create fresh possibilities for the use of training indicators in VET planning and vocational guidance. State and regional VET planning occupy an important place in the report, as this is increasingly where important VET plans and decisions are made and where training indicators can have a major impact. Whereas

State and regional VET plans appear to be organised primarily along industry lines, institute-level plans appear to be expressed more in terms of the (adjustments to) provision of educational courses that will give effect to industry and regional planning priorities.

The issues and directions for training indicators are discussed in terms of the national planning background; the place of indicators in VET planning; the market for training indicators; needs and gaps; classification, forecasting and resourcing issues; and the aptness of indicators for the VET climate.

Training indicators help in meeting the needs of the national strategy and the measurement framework for the VET system. In recent years, they have often been developed to assess stocks of skills and client outcomes, now KPM 2 and KPM 4.

A range of supply and demand training indicators are used in national and State VET planning and region–industry planning. There appears to be limited formal assessment of the usefulness and accuracy of the indicators used in developing successive plans. The processes and indicators used for VET performance measurement and evaluation tend to follow somewhat different tracks from those used for VET forward planning.

There is evidence of persistent demand for training indicators, which in this report are regarded as a 'public good'.

NCVER responds to demands for training indicators with a range of national and State analyses of VET enrolment, training and student outcomes. For State VET planning purposes, States and Territories may supplement these analyses with their own systems data on VET students, other statistical analyses and industry survey sources.

With increasing diversification and deregulation of the training market, there are important needs and gaps for training indicators directed to regional and technical and further education (TAFE) institute planning processes and decisions. The tools and indicators available at these levels can be improved.

Institute planning and the use of indicators for institute comparisons are issues of some sensitivity. Also discussed in this report are the most useful frameworks (industry, discipline, field of study or unit of competency) for VET planning and indicators, and the extent to which the training indicators do or should use (industry) forecasts.

The preference among State VET planners is to use industry and occupational forecasts as one, if not necessarily the predominant, set of training indicators which contribute to VET plans and planning decisions. This seems reasonable if, as argued here, VET systems have both leading and following roles in developing skill solutions for industry and individuals.

The debate tends to focus on the best techniques and training indicators for VET planning, but continuity in VET organisational resources and expertise is just as important as technique in improving judgments and inferences. Resources and expertise, in NCVER and State VET agencies, matter greatly if training indicators are to make their best contribution to sustainable improvements in VET planning.

Table 1: Selected training indicators for assessments of changing VET demand, at national, State and regional levels

Training demand indicators (for a nominal industry):	Training supply indicators (nominal industry, discipline or field of study):
• Output and productivity, and growth forecasts • Employment, recent employment change, growth forecast • Assessment of strategic importance (of an industry to the economy) • Industry characteristics (size and distribution of firms) • Industry training needs (emerging or contracting skills demands) • Replacement demand levels • VET graduate employment and salaries, and trends • Employer and student satisfaction, and trends • Job market trends (wages and conditions) • (Regional) demographics	• VET funding, and trends • Training providers (numbers, types, locations and trends) • Training activity and trends – students, enrolments, hours and trends • Training trends in detail – course enrolments, levels, completions and trends – enrolments by package (competencies), and trends – contracts of training, completions, and trends – module enrolments, completions and trends • Shares of training market (by provider, by pathway, by level) • Other supply sources (existing workers, retraining, migration) • (Regional) enrolment demographics

Derived measures (comparing demand to supply):
• Output or strategic importance (of an industry in the economy) versus VET funding levels • Employment levels versus VET funding levels • Employment levels versus levels of training hours • Employment levels and trends versus enrolments, contracts of training, completions • Growth and replacement needs versus training completions • Regional demographics versus regional enrolment demographics • Industry market needs versus training trends and training market shares • Suggested direction of training effort (+, 0, -) • Suggested training gaps and (purchasing) opportunities

Note: Indicators and comparisons may be quantitative or qualitative. The fourth chapter in this report provides further explanations.

To emphasise this point, the report notes that available and current training indicators have been used successfully to make judgments about some of the critical VET policy questions (for example, the quantity and quality of traineeships). Over the period 2000–05, these indicators offer suitable measures to assess prospects and performance in a VET system under policy and resource stresses, and flexible measures to examine VET responses to changing industry, skill and demographic trends. In particular, training indicators can be used to analyse important lines of inquiry (including youth transition issues) that follow from the basic concept of KPM 2: stocks of VET skills against desired levels.

The report develops summary propositions for good practice in the use of training indicators, for increasing the range of training indicators, for improving the implementation of KPM 2, and for improving the dissemination of training indicators for VET planning.

Consistent with the project aim, and to distil its results, table 1 proposes a selection of training indicators—on the demand side, on the supply side, and comparing demand to supply—which may be used for improving assessments of changing VET demand at national, State and regional levels. The table presumes that indicators would usually need to be applied to particular industries, disciplines and fields of study.

Project and policy background

This chapter provides research and policy context for the project and defines terms.

This project on the development of training indicators responds to the need for information about labour market changes, skill shortages, and social and economic indicators, to inform training providers about changes in training demand. The aim is to develop a range of indicators, to assist policy-makers and training providers to identify new areas of demand and the subsequent need for reskilling in declining or restructuring industries.

The project follows a recent critique (Blandy & Freeland 2000) of economic modelling and benchmarking as means of measuring the adequacy of the stock of vocational education and training (VET) skills, one of eight key performance measures (KPM 2) for the VET system identified in the 1999 Australian National Training Authority (ANTA) publication, *Key performance measures for vocational education and training* (ANTA 1999d).

Key background paper

Blandy and Freeland (2000) is the main background paper for the project. This paper identifies four broad approaches to assessing the adequacy of the stock of VET skills.

The *manpower requirements* approach attempts to derive skill requirements implicit in national and industry forecasts, to compare these to projected supplies, and formulate training programs to eliminate excess demands and supplies. The prime example cited by Blandy and Freeland is the Organisation for Economic Co-operation and Development (OECD) Mediterranean Regional Project of the 1960s (see Hollister 1967).

The *international, national and industry comparisons* approach compares national, State or industry skill profiles with model, target or yardstick profiles and benchmarks and formulates training programs so as to achieve the model profile(s). The ANTA workskill benchmarking reports of the late 1990s (Cullen 1997a, 1997b, 1998) are key examples given.

The *labour market analysis* approach employs models of markets for skilled labour to forecast excess demands and supplies and formulate corrective policies. Freeman's (1976) study of the American college graduate market is the main study put forward.

The *training indicators* approach looks at indicators of present and likely future conditions for skilled labour and forms judgments about the most appropriate courses of action to improve skilled labour outcomes.

Blandy and Freeland query the usefulness of the first three approaches in assessing the adequacy of VET stocks—KPM 2 for the VET system (ANTA 1999d).

To paraphrase their critique, the first and third approaches tend to fail because skilled labour markets, whatever the forecasts and their timeframes, tend to self-correct for better or for worse by varying labour prices, varying internal or international migration, varying occupational entry and exit rates, varying the rates of movement from adjoining qualifications and occupations, and so on. That is, the training supplies, generated by the VET system, operate inside a larger framework of supply and demand adjustment mechanisms. It is difficult to isolate and forecast the exact industry or occupational shortages of skills so that these can be prescribed to the VET system as the required systemic response.

The second approach tends to fail because there is no compelling economic logic that says why the skill profile of the area (national, State or industry) under examination should match the assigned benchmark drawn from elsewhere.

Rather than the first three approaches, the authors recommend approaches to KPM 2 based on the use of training indicators. They give examples of what they deem to be such approaches. These and other examples are discussed in the following chapter. Thereafter, the report aims to develop the range of indicators.

Defining training indicators

For the purposes of this report, it may be useful to define the term training indicators, as it is not a common term in the VET sector.

Here, training indicators are taken as any functional suite of quantitative and qualitative indicators of current or future VET supply and demand, potentially including economic, social, labour market, vocational, and other indicators, which governments, enterprises, training providers or individuals may bring together to guide decisions about investments for skill training, especially at the industry, occupational, regional and course levels.

The policy environment for training indicators

In the recent evolution of the Australian training system and training market, there have been conscious policy shifts toward the industry or demand side of the training market (Allen Consulting Group 1994), including user choice (Kemp 1996).

There have also been considerable increases in government funding effort. Public and private VET providers can now offer more diverse forms of skills and qualifications both inside and outside contracts of training. The regulatory system has evolved into the current system, whereby government and non-government providers can offer competency-based training and qualifications under the same recognition framework (ANTA 1999b).

Australia now has a mixed or semi-competitive VET funding model rather than a market of pure competitive forces. Training costs are shared among employers, government and individuals, but employers appear to carry significant costs (Dockery, Kosky, Strombach & Wiwi Ying 1997) in the case of apprentices. In their market interventions, governments (see OTFE 1998) may attempt to target the more

general types of vocational skills represented by many apprenticeships (Billett & Cooper 1998), or they may target what they regard as strategic industries for the economy.

These developments in the Australian training market, and the more recent ANTA and State VET planning protocols, have tended to create fresh needs and demands for training information and training indicators.

An important issue in the training market, and particularly relevant to the development of training indicators, is the kind of attention that the system gives to VET clients and to their VET information needs. Organised surveys of consumer satisfaction and outcomes are quite a new (1995) feature of the VET system. Such surveys have now been adopted as KPM 3 and KPM 4 (ANTA 1999d) for the system.

Anderson (1997a), Billett (1998), and Billett and Hayes (2000), have argued that VET students and trainees still tend to be defined out of the client loop and are unlikely to have an appreciable consumer impact under current VET planning and allocation models. Kilpatrick and Allen (2000) contend that industry has been overplayed as the principal VET client compared to enterprises, communities, families and individuals.

Anderson (1997b) sees gaps in information relating to the size and structure of the VET market, and limited research on VET supply–demand and VET products. Anderson (1998) and Robinson (1998) contend that VET lacks the preconditions (multiple buyers and sellers, standard products, supply and demand information) for a truly competitive market. Freeland (1999), reviewing supply–demand forces in selected VET markets, describes subtle supply–demand interplays, rather than a pure market. Both supply and demand sides, he observes, make essential contributions to the successful outcomes derived from VET.

Robinson suggests an emphasis on better VET information and more diverse products, rather than on the commodity-market approach of multiplying the sellers of standardised products. As described later, an issue here is that the diversification of market (provider) information does not appear to be keeping pace with the expansion of the VET market.

Drawing on Anderson's work, Freeland describes the development of the training market as a shift from a dual (public–private) market to a sectoral one. Most public VET funds flow directly to technical and further education (TAFE), some public funds are up for competition (user choice), and there is also an open market available to both private and public providers. The unifying feature is that all markets and registered providers can offer the same qualifications under the post-1998 recognition framework.

The medium-term directions for VET policy are set by *A bridge to the future: Australia's national strategy for vocational education training 1998–2003* (ANTA 1998a). Within that, VET ministers agree to annual national priorities each year, which provide the context for State and Territory planning and funding priorities.

The strategy responds to globalisation, the increasing service and knowledge bases of the economy, and changes in demography and job distributions. Its five objectives are equipping Australians for the world of work, enhancing mobility in

the labour market, achieving equitable outcomes in VET, increasing investment in VET, and maximising the value of public VET expenditure.

Public VET funding exceeds $4 billion (NCVER 1999c), most of which is allocated through the State training profiles and strategies. NCVER (1998a, p.12) comments that resource allocations, at least in terms of annual hours, have recently moved 'toward areas such as business and clerical, community services, health and education, tourism and hospitality, indicating that some key features of the VET market are finding an appropriate response from the VET systems'.

This perceived responsiveness relates in part to the coincidence that more liberal traineeship policies and more diverse traineeship programs have enabled the growth industries for employment to become the growth sectors for apprenticeships and traineeships. States and Territories, consistent with recent (ANTA 1996, 1998e, 1999c) policy, maintain commitments to apprenticeships and traineeships in their State training profiles.

A comparison of the NCVER paper and an industry monograph (Murphy 1998) suggests that the more recent ANTA resource shifts tend to match up with low output growth–high job growth industries rather more than high output growth–low job growth industries. There is an element of this in the recent State VET profiles and planning documents.

The ANTA resource allocation plan for 2000 (ANTA 1999c) moves resources in favour of industries with the greatest projected 1997–2006 employment growth—cultural and recreational services, education, retail, business services, and health and community services. State VET plans are generally similar, with some variations for local industry circumstances.

These approaches are a shift from recent (Cullen 1997a, 1997b, 1998) efforts to benchmark VET skill requirements against international or Australian yardsticks.

At the macro level, it could be said that projected employment growth is being used as the training indicator of choice for (marginal) shifts of training resources. Including these shifts, the projected total national VET provision for 2000 is nearly 260 million hours and the top five industry totals are community and health (nearly 26m), tourism (nearly 20m), arts–entertainment, building, and engineering (each 15–16m).

Billett (1998) contends that the centralised training model and the industry-led training model are not necessarily the only two options. He calls for a voluntaristic middle ground where local VET planning is pursued to meet the needs of individuals, enterprises, regions and industries. Billett and Hayes (2000) urge a participative model of regional planning that responds the unique features of different regions. Their model is sensitive to, rather than intensive of, regional training indicators.

State planning processes do include regional consultations and regional input. This is set out in the following chapter. Projected employment growth is an important planning indicator, but other indicators assume increasing importance at the regional and institute levels of planning.

The final part of the VET planning loop is that of performance measurement and evaluation. The *Report on government services* 1999 (Steering Committee 1999), while

acknowledging ongoing ANTA improvements, contends that national VET skill outputs (and gaps) are areas of deficits in VET measurement.

Following on from the national strategy ANTA (1999d) produced *Key performance measures for VET* to take full effect in reporting for 2001. There are eight KPMs which, in brief, cover skill outputs, stocks of skills, employers' views, student outcomes and prospects, participation and outcomes by client groups, public expenditure per publicly funded output, public expenditure per total output, and total VET expenditure.

Recent practice and use of training indicators

Blandy and Freeland (2000) point to notable overseas and Australian efforts to use training indicators in the VET field and for a wider range of skilled occupations and labour markets.

Their main Australian examples are the work of Departments of Labour Advisory Committee (DOLAC), the Department of Employment and Industrial Relations (DEIR) *Occupational outlook* program (see DEIR 1986), and training indicators as used by ANTA itself.

This chapter reconsiders these examples, with a wider selection of Australian papers, reports, and ongoing programs, which could be said to use training indicators as defined above. Table 2 provides a summary of these examples.

The examples are discussed in terms of the type of analysis, the types of indicators, the motivations for using the indicators approach, and its degree of persistence or success over time. More often than not, the search is for indicators of VET for particular industries and occupations. The exception is the youth transition issue, where the search is for indicators of the adequacy of (VET) preparation for particular education or age cohorts of young people.

In this treatment, the distinction between industry-occupational forecasting and training indicators methods is one of degree rather than one of kind. Some of the methods below certainly use forecasts but as one element of a total approach. While the focus is on training indicators for VET, the discussion takes in indicators across post-secondary education and training generally, whenever this is the sensible approach.

Indicators of youth transition

The adequacy of Australia's youth transition—from school to education, training and work—is an important measure of the national health of the VET system. This issue has prompted many of the most important VET reforms and numerous indicators may be used to assess the adequacy of the transition.

Rising youth employment and low school retention (only 40% continuing to Year 12 at the time) were important measures in the Kirby Inquiry into Labour Market Programs (Kirby 1985) that led to traineeships. The Australian Education Council (AEC) report (Finn 1991) also supported increasing investment in Australia's skill base. Governments embraced Finn's Year 2001 goals. As currently interpreted, these are that:

- 95% of 19-year-olds should be participating in or have completed Year 12, or have Year 10 or 11 and be participating in or have completed some formally recognised education and training

- 60% of 22-year-olds should be participating in or have completed an AQF level 3 qualification or be participating in or have completed equivalent higher education (diploma or degree).

Perceived deficits in youth education and training led successive Commonwealth Governments to put forward *Working nation* (Keating 1994) and later the New Apprenticeships agenda (Kemp 1996). In the contemporary setting, differing measures lead to differing opinions on the overall adequacy of young people's VET opportunities.

Sweet (1995, 1996) asserts that young Australians are greatly undersupplied with VET opportunities. He estimates only 25% of all education and training places available to those of upper secondary age are in the VET sector, scarcely more than the 20% of 1985 and well under the OECD average of 50%.

To some extent, this is subject to the same criticism of international comparison approaches as that discussed in the first chapter. It does not fully test the assumption that a participation rate of 25% in VET by teenagers is insufficient for Australia's particular economy and labour market.

Concerned that Australia will fall short of Finn's targets, Lundberg (1998) concedes that the case for targets weakens when the enterprise perspective is considered. Ball and Robinson (1998), Robinson (1999), Wooden (1998) and Misko (1999) seem less convinced of a large deficit in youth VET places. Playing down international comparisons, but taking broader perspectives and measures of the Australian experience, the authors imply that young people are making other valid education and work choices, be they recognised VET or otherwise.

Misko classifies young people's main education and training pathways between 1996 and 1997. She notes:

- the recent 5–6% fall in apparent retention to Year 12 (down to 72% in 1997)
- that 35–40% of Year 12s go on to university
- almost a quarter of Year 11–12 completers go on to TAFE
- only about 10% of students undertake VET in Schools programs
- the numbers of students entering apprenticeships have declined since 1989

Following Ball and Robinson, Misko notes that the percentage of 15–19-year-old teenagers in VET remains around the 20% mark over 1990–96. She suggests that the slight decline in Year 12 school retention rates may be due to changing student preferences and perceptions and not just unfavourable family or personal situations.

Wooden (1998), and Lewis and Kosky (1998), infer that the big shift since Kirby is not the proportion of (15–19-year-old) teenagers in employment but the proportion in part-time employment. About 275 000 of these teenagers are said to be in part-time employment and also in school, whereas the numbers in apprenticeships and traineeships are now 80 000 or fewer. The first figure is about 30% of all teenage students or 20% of all teenagers. Perhaps, these informal work-and-study options have to be given some place along with formal schooling (Year 12) and VET options in sets of measures of the adequacy of youth transition.

Table 2: Examples of practice and use of training indicators, 1970s to date

Program or authors	Types of analysis	Types of indicators	Rationales
Youth transition issues, 1980s to date	• analysis of pathways and job-skill outcomes for youth supply	• shares of young people in different education and training paths • shares of young people achieving skills, qualifications or jobs • international comparisons of youth transitions and outcomes	• motivated by concerns for productive workforce and economy, sometimes by concerns for young people failing
Analyses of the trades, 1980s to date	• demand–supply syntheses of training (DOLAC, DEET etc.)	• demand side: economic activity, employment trends, structural and demographic change, gov't policy, replacement demand	• motivated by supply and wastage (not growth) concerns
		• supply side: enrolments, migration, upskilling, unemployment levels, etc.	• made good inferences about the future (mainly replacement) needs
	• derived measures as training indicators (State Gov't, academic)	• rates (%) of replacement of stock, or apprenticeships as % of trades (or total parent industry) employment	• prompted by trade reform issues, or assessing 'decline' in trades
Occupational analysis, 1970s to date (DEIR to DEWRSB)	• demand–supply synthesis, derived measures (1980s)	• workforce size and profile, working conditions, type of training, training rates (%), supply–demand balance, labour market outlook	• important for training, immigration, careers, job placement, uses
	• demand-supply synthesis (1990s)	• similar to 1980s, but with emphasis on summary occupational prospects according to projected job growth and labour turnover	• similar to 1980s, but job placement more so and immigration less so
Vocational guidance and graduate outcomes, 1970s to date	• career-course directories	• factual descriptions of careers (Job Guide) or courses (OZJAC)	• widely available, basic information
	• derived measures	• graduate employment and salary rates (GCCA), institutions, courses, course profiles, course satisfaction (Good Universities Guide)	• widely accepted as market indicators for institutions, students
		• graduate employment rates, job and salary benefits, course and employer satisfaction (VET Student and Employer Surveys)	• new (post-1995) surveys now part of KPMs for VET
State VET planning processes (State, region, institute levels), from 1990s	• demand–supply synthesis (some derived measures)	• demand side: industry needs advice, priority industries, industry and output forecasts, region socio-economics, regional industry and employment, and so on • supply side: demographics, labour force trends, qualification profiles, skill profiles or gaps, volume of training funds, volume of enrolments, volume of training, volume of completions, and so on	• seeking to give best effect to national and State VET strategies and plans • finding best uses of public VET funds to balance competing demands from industries and client groups

Note: See following for details and explanations of terms. See table 3 for more details on State VET plans.

A recent OECD (2000) report gives Australia a fair report card for youth transition. For example, Australia's post-secondary participation at the first age at which such participation is at a maximum is estimated at 35%—25% in university and 10% in other pathways. This percentage ranks fifth of 18 nations. Australia scores very low on legal school leaving age (15), but much higher on average age (19.8) of actually leaving education.

However, Kirby (2000) himself remains critical of education and training for young Victorians (Australians), drawing a link between education and literacy levels and economic outcomes. He cites poor youth participation, poor outcomes (qualifications, jobs and literacy) among certain groups and geographic regions, lack of co-ordination in education and training, and a lack of system accountability towards all young people.

Indeed, despite steady increases in the 1990s, Australian Bureau of Statistics (ABS) transition data suggests that Finn's 2001 target for 19-year-olds may be undershot by 10% or more. This is acknowledged in the 1998 ANTA *Annual national report* (ANTA 1999a, p.10) for VET, which also estimates that the Finn target for 22-year-olds is on track.

Use of agreed or common sets of indicators might help to bridge the divergent views and indicators of the youth transition. Perhaps the emphasis needs to shift more to the experiences and outcomes of the young people themselves. In that sense, diverse (national, regional and demographic) indicators of labour market and skill (qualification) experiences and outcomes appear to have greater value than indicators of the outputs of the various education and training systems that serve them. It is to be noted that the framework of transition indicators proposed in the OECD report emphasises the context, duration, pathways and outcomes of transition more than the detailed processes (educational outputs).

A greater or lesser weight may be placed on Australia-to-OECD comparisons, according to the perceived strength of the link between member nations' youth (education and skill) outcomes and their economic outcomes. In either event, there appears to be a strong case for intensifying the indicators placed over the sizeable minority of young Australians who are still failing to make an adequate transition within a reasonable period.

Analyses and indicators for the trades

Before the establishment of ANTA, DOLAC was a key Commonwealth–State committee of employment and training officials. Their 1983 report (DEIR 1983b) studies supply and demand for skilled trades labour, specifically eight major trades.

Rather than manpower planning, DOLAC recommends what it calls an analytic approach. Analysis of the skill stocks in various trades is considered in the context of demand factors for the various trades (economic activity, employment trends in employing industries, structural and technological change, government policy, demographic change and replacement demand) and supply factors (course enrolments, occupational migration, informal upgrading, unemployment levels, and so on).

DOLAC finds that the trades under consideration have had more or less static workforces over the preceding ten years. Acknowledging the vagaries of occupational forecasting, the officials anticipate—with some justification as it turned out—limited growth over the following ten years.

Notably, DOLAC also estimates the supply into and wastage from the trades as percentages of the employed workforce, after the manner of DEIR's *Employment prospects by industry and occupation* (DEIR 1983a) of the same period.

Similar emphases are found in a later DOLAC paper (DOLAC 1988) on competency-based training in the trades, which examines structural trends and government policies in the trades, rather than employing detailed forecasts of, or benchmarks for, them.

The DOLAC papers are prompted by concerns about supply into and wastage from the trades, rather than by substantial growth expectations. While DOLAC itself is no longer an important part of the VET system and its measurement, its papers are important milestones.

Other official bodies leaned towards training indicators in analysing supply and demand for trades and other occupations. A 1987 ACT paper (Office of ACT Administration 1987) is an intensive application of the *Occupational outlook* techniques. Issued for a consultative review of the local training authority, this paper measures the rates of training (annual ACT graduations as a percentage of employed persons) for a variety of professional, middle-level and trade occupations.

Comparing training rates across occupations in the ACT, and across Australia, the paper infers that ACT training is over-geared in some professions (annual training rates over 10%) whereas most trade training rates sit at a low 2–4%. Information technology and tourism are signalled as priority areas for VET development. Indeed, over the following ten years these areas gained a much stronger place in the ACT economy and vocational training provision.

Companion papers to the 1988 DOLAC report are Segal and Johnson (1987), Dawkins (1988) and State Training Board of Victoria (1989). These papers argue the case for reform of trade training (including competency-based training) in terms of reducing persistent trades shortages and improving flexibility of supply to respond to demand. They tend to rely more on practical evaluations of the supply and demand indicators, as they stand at the time, rather than attempting detailed forecasts of future markets for the trades.

In this author's (Saunders 1999) review of apprenticeships and traineeships policy developments, the type of analysis represented by DOLAC and the ACT papers appears to fall away after the late 1980s. There appears to be a similar pause in the DEIR work (see below) over the corresponding period.

In the mid 1990s, a number of VET-related studies make a definite return to training indicators of one form or another. Dandie (1996), Pickersgill and Walsh (1998), Natarajan and Misson (1998) for Victoria, and Smith (1998) for Queensland, measure apprenticeships as a proportion of employment in trades, or in parent industries, or in the workforce as a whole.

Using these simple measures as something of a sobriety test to counter speculation about trades being in decline, the authors find that the overall proportions are relatively stable over time. Re-applying the measures to individual trade groups, they uncover greater problems in more recent years in certain trades.

Smith's (1998) analysis leads him to query whether there is still the same need for trades in the future skill mix of the Queensland economy. Significantly, the high cross-industry variability that the author observes on nearly all of the supply-and-demand-side training indicators suggests to him that training issues should be approached industry by industry. In its prescriptions for training indicators, this report will follow a similar logic.

Like the DOLAC papers, the government and academic papers cited here tend to be prompted by concerns about the balance of supply and (replacement) demand in the trades. The ACT paper is unusual in considering trades together with the range of skilled occupations, but such an approach is characteristic of the DEIR work now considered.

Occupational analyses and indicators

The Department of Employment and Industrial Relations (DEIR), subsequently the Department of Employment, Education and Training (DEET) and now the Department of Employment, Workplace Relations and Small Business (DEWRSB), has a substantial record in the use of training indicators for the analysis of (skilled) occupational requirements. Over the years, this national program has been co-ordinated by the economic or labour market group in the department's national office and supported by staff researchers based in the State offices.

In the middle 1970s, DEIR began to research and publish its *Employment prospects by industry and occupation* (for example, DEIR 1983a), later issued as *Occupational outlook* (DEIR 1986).

The publication deals with about 200 key skilled occupations in the Australian labour force—professional occupations, paraprofessional and middle-level occupations, and trade and other skilled occupations. For each occupation, the training indicators covered include workforce numbers, wages or working conditions, training, (percentage) training or workforce replenishment rates, supply and demand, and labour market outlook.

Also included are similar summaries of industries, including output and export figures, employment (skilled), occupations and training, and summary industry forecasts.

The main purposes for the program are stated as 'training' (training programs and policy rather than training providers), 'immigration' (including guidance for skilled labour migration intakes), 'careers' (career advice in schools, TAFE and so on), 'job placement' (the then Commonwealth Employment Service), and 'general purposes'.

The immigration purpose was so important that, over 1984–89, DEIR and DEET issued a separate training indicators publication (for example, DEET 1988) for skilled migration. Based on economic and occupational analyses (similar to *Occupational outlook*), estimates were prepared for skilled occupations of

employment, annual domestic output, and (proportionate) occupational shares from migration where these were deemed appropriate.

Careers usages were also very important, even though the recognised DEIR career guidance program and products lay elsewhere in the organisational structure.

The occupational outlook program narrowed towards the end of the 1980s, tending to focus on occupations in shortage rather than the broad range of skilled occupations. Over the course of the 1990s, DEET, later Department of Employment, Education, Training and Youth Affairs (DEETYA), and then DEWRSB, continued to research skills in shortage. *Skills in Australia* (DEETYA 1998) is a representative paper.

The DEWRSB program has broadened again since 1998, once again taking in a wider range of occupations (nearing 400) and of supply-and-demand-side training indicators. The state of the art is represented by publications such as *Job futures* (DEWSRB 1999, 2000a) and websites such as *Job outlook* (DEWRSB 2000b).

The range of indicators in *Job outlook* and *Job futures* is similar to that found in *Occupational outlook*, but actual rates of training are no longer computed. These have been supplanted by ranged estimates (above average, average, below average) of occupational unemployment rates and projected growth and turnover.

The skilled migration emphasis having fallen away, the current job outlook program has been boosted by government's needs for job placement information in the deregulated Job Network. *Job outlook* links directly to actual jobs available through DEWRSB's job search (2000b) site. Another impetus is the current government's interest in skill shortages, as evidenced by several recent studies (for example, Electrotechnology Working Group 2000) under the auspices of the government-industry National Industry Skills Forum.

Informally, the program is still widely used for vocational guidance purposes, although, once again, the recognised Commonwealth career guidance program lies elsewhere in the portfolios (see below).

The coincidence that present-day information technology can economically store and disseminate multivariate job and job vacancy information, for immediate retrieval and search, should not be underestimated as a factor in the resurgence of *Job outlook*.

In years past, the lack of such a capacity has inhibited the production and marketing of *Occupational outlook* and other occupational and career information packages developed in Australia and overseas.

Indicators for vocational guidance and graduate outcomes

The continuing informal uses of the DEIR job outlook work for career guidance purposes are one sign of the underlying demand from governments, enterprises and individuals for information on vocations and their prospects.

Well-known government and commercial programs have addressed these needs over the years and, in so doing, have used training indicators to a greater or lesser

degree. Of particular note are the DEIR (now the Department of Education, Training and Youth Affairs (DETYA)) national career guidance program and the large-sample Graduate Careers and Graduate Destination programs for university and TAFE, auspiced by the Graduate Careers Council of Australia.

From (at least) the 1970s, DEIR and its successors, Department of Employment and Youth Affairs (DEYA), DEET, DEETYA and DETYA, have had a national career guidance program which has issued summary career prospects, usually under the title *Job guide*. The program is now located in DETYA (see DETYA 2000), issuing the *Job guide* publication to Australian secondary schools and reissuing the same material on a website.

Job guide covers the broad range of Australian occupations and jobs, primarily delivering State-by-State factual descriptive information on job, personal and training requirements rather than training indicators as such.

There was, however, a well-regarded WA careers publication that used quantitative and qualitative training indicators adapted from the occupational outlook work. *Careers WA*, which ran from 1980 to 1994 (DEET WA 1994), was produced by the department's labour market rather than careers group.

In a similar vein to *Job guide*, OZJAC (Curriculum Corporation 2000) is a recognised web directory for the types of professional and vocational courses available through Australian universities and VET providers. Variously, other web sites package up similar career and course directories for particular jurisdictions (for example, DTE WA 2000) or parts of the skills and training market (for example, the NacInfo (ANTA 2000b) national site for new apprenticeships).

More robust kinds of training indicators are found in the Graduate Careers (GCCA, 1998, 1999a, and 1999b), Good Universities (Ashenden & Milligan 1999, 2000) and VET Student Outcomes (NCVER 1999d, 1999e) programs.

The GCCA series (for example, *Grad stats* (GCCA 1999a)) is of long standing and is based on a large sample of each year's Australian university graduates. It does not directly compare supply (graduate numbers) to demand (numbers in employment or vacancies). The key measures are graduate employment rates and salary rates, from which inferences about the changing balance of supply and demand may be made.

The privately managed *Good universities guide* reapplies the *Grad stats* measures, adding detailed information on individual institutions and their courses, student profiles and student satisfaction ratings. Once again, the focus is primarily on universities and professions. There is information on VET sector outcomes, but for State TAFE systems as a whole rather than for individual institutions. Much of the VET information is derived from the *Student outcomes survey* (see below) for VET.

In *Grad stats* (GCCA 1999a) the full-time employment rate for those university graduates seeking it varies from near 90% (late 1980s) to 70% (early 1990s) and returns to 81% (1999). The full-time employment rates for 1998 graduates vary from around 90–95% (certain health, engineering and law professions) to as low as 60–70% (natural, social sciences or humanities).

Over the period 1977–99, graduate starting salaries indicated a trend downwards from 95–100% of average weekly earnings to about 80%. In 1999, the average starter

earns about $31 000. A few health, technical and science occupations earn salaries which are between $5 000 and $10 000 higher.

The time series is sufficiently well established to give clear evidence of the changing graduate prospects over time and by occupation. These labour market variations would correlate with varying degrees of control or growth in the rates of training, as defined in the ACT study above. For example, the above-average salaries enjoyed in certain health disciplines tend to reflect controls on vocational supply. Those in certain technical disciplines may be more a factor of growth in vocational demand.

Turning to VET courses, the *Survey of employer views on VET* (NCVER 1999f) and *Student outcomes survey* (NCVER 1999e) can be seen to parallel some of the approaches used to analyse graduate prospects in the Graduate Careers and Good Universities programs.

The first of these reports is a general survey of employer hiring of, and satisfaction with, recent VET graduates. The second is a survey (50–55% response, over 250 000 persons) of all graduates from certificate and 200-hour and above TAFE courses from 1998. For the first time, the latter report also covers persons who have completed individual training modules as well as complete courses.

The key indicators in *Student outcomes* survey are graduate employment rates and job and salary benefits. In the 1999 report, these indicators remain fairly stable compared to the 1998 and 1997 reports. In May 1999, about 73% of the 1998 VET graduates were employed, although the average is over 80% for some fields of study and below 65% in others. After graduating, about 88% were working or in study, compared to 78% before the course began.

About 63% of employed graduates received at least one employment benefit (more pay, promotion or new job) from their training. For graduates in their first full-time job at May 1999, average earnings were about $460 a week ($24 000 per annum), with high variation by occupation and industry.

Having only commenced in 1995, the VET employer and student surveys cannot at this stage be expected to provide employment trend-lines comparable to those available from Graduate Career publications. DEWRSB and State training agencies have suggested that the surveys might become more useful over time for VET and occupational planning with the injection of greater industry, occupational or regional analysis.

Recent (NCVER 2000f, Ryan 2000) studies compare TAFE and university graduate outcomes at a point in time (1999 data). The two sectors' employment outcomes are found to be fairly similar, but the respective industry and occupation spectra are quite different.

For his analytical purposes, Ryan finds that the TAFE and university outcome data (destinations) provides a more robust indicator than the output data (enrolments). The Billett and Hayes paper, *Meeting the demand* (2000) is another recent example of the VET employment outcome data being used as a planning indicator. Such uses are not common. This points to the relative under-use of VET outcome data as a training indicator.

With their most recent *Good universities guide* (Ashenden & Milligan 2000), the authors observe that some States have given permission for the use of comparative student outcomes data as it relates to individual fields of study, but not to individual TAFE institutions.

While the conservative information policies are understandable, they have their costs. Despite a decade of reform in the VET system and VET funding, a recent NCVER report (James 2000) reiterates the overwhelmingly greater inclination of senior secondary students towards university rather than to TAFE. Within the current levels of information and understanding, many school leavers are said to be 'poorly informed and unrealistic in their expectations. VET does not have a high profile among school students' (James 2000, p.viii).

Significant improvements have occurred in the range of options available to senior secondary students, mainly through VET in Schools programs and the broader developments in vocational learning (see Curriculum Corporation 2000). However, this has not been matched by strengthening the provision of careers education or guidance to assist students to make informed choices.

In his paper, James doubts that the national imperative of lifelong education and learning is well served by the disparate systems and conceptions of higher education and TAFE. As Ryan (2000) observes, the first-order comparison between TAFE and university graduate job outcomes is not particularly unfavourable to TAFE.

VET planning processes and indicators

The inauguration of the training market and of ANTA has lent new dimensions to the VET (TAFE) planning processes. Since 1992, these have acquired greater co-ordination and consistency within the States and Territories and considerable amounts of labour market and industry input. Within that, States maintain their distinctive approaches to the detail and implementation of VET planning.

The Blandy and Freeland (2000) assessment is that ANTA is using the indicators approach to assess the balance of skills in its annual national report evaluations (see ANTA 1998b, 1999a).

In a similar sense, ANTA could be said to use an indicators approach prospectively to allocate VET funds. As noted, most public VET funding is allocated through a national ANTA plan and corresponding State VET plans which divide resources (annual hours) among broad industry areas.

VET planning and indicators

At the national level, and in turn at State levels, marginal year-to-year shifts in industry resourcing appear to broadly follow a key indicator, in the form of the national or State industry employment growth forecasts.

The ANTA plan and its marginal shifts of industry VET resources have been discussed above. The ANTA (1999c) plan for 2000 moves resources in favour of industries with the greatest projected 1997–2006 employment growth—cultural and recreational services, education, retail, business services, and health and community services.

These five industries align approximately with five of the 19 industry training areas that are employed in the ANTA planning grid. Nominally, if not by intent, these 19 groups are similar to Australian and New Zealand Standard Industrial Classification (ANZSIC, ABS 1993) industry divisions, although there are three cross-industry groups and one general workforce group. Most States follow the industry training areas when they offer broad summaries of shifts in training activity in their VET plans.

Recent (up to year 2000) documents of State planning processes at work are those of the South Australian Department of Education, Training and Employment (DETE SA 1998, 1999), the Queensland Department of Employment, Training and Industrial Relations (DETIR 1999a, 1999b, 1999c, 2000), NSW Department of Education and Training (NSW BVET 2000), the WA Department of Training (Department of Training WA 1999), the Victorian Office of Training and Further Education (OTFE 1999a, 1999b), and the Tasmanian Office of VET (OVET Tasmania 1999). Table 3 summarises State VET plans, their industry and regional dimensions, and their uses of training indicators.

The SA plan, covering the period 1998–2000, employs a forecasting process similar to that of ANTA (1999c) to award the biggest (2–5%) 1998 funding increases to food processing, tourism and hospitality, community services, computing, and transport and storage. This contrasts with the NSW plan for 1999–2000, where the industry funding increases cluster around 1%.

The nature of industry, occupational and regional input to State VET plans is worth noting. States have sophisticated industry planning processes, with the State industry training advisory bodies (ITABs) or regional development boards (as in South Australia) having key roles. These processes fall short of those envisaged by Burns and Shanahan (2000), who call for timely information on changing labour market conditions which is 'highly disaggregated' (Burns & Shanahan 2000, p.v), identifying likely imbalances in occupational labour markets rather than simply attempting employment forecasts.

In the South Australian plan, for example (DETE SA 1998), the industry profiles and training priorities are underpinned by industry training plans and notes that consider the 'four-way' interaction of structural, cyclical, quantitative and qualitative influences on labour demand. The SA plan makes allowance for (15) regional training priorities (priority industries and occupations, selected major growth areas and skills needed), based on input from the regional training boards and regional official visits. As would be expected, the regional industry training priorities exhibit subtle regional variations on the expressed State industry priorities.

The SA regional industry priorities are updated in DETE (1999), including industry training priorities under the open market (general tender) program. It is noted in the update that course discipline codes are to supplant the ANTA grid of 19 in SA planning.

The Queensland VET plans for 1999 and 2000 (DETIR 1999a, 1999c) direct marginal funding growth to the growth in key industries. The 1999 plan puts a particular emphasis on State-wide and regional skill shortages, which align to some extent with skill shortages reported by DEWRSB in the same period. The DEWRSB

analysis is not often applied to State VET planning, although it also appears in the SA planning update (DETE SA 1999).

Queensland also publishes industry training plans and rolling VET resource plans (for example, *Resource priorities 2000–2002* (DETIR 1999b) and *Resource priorities 2000/2001–2002/2003* (DETIR 2000). The resource plans summarise, by industry, the key employment and training issues, and set out 'the resource priorities for the training market and the purchasing strategies that will be used' (DETIR 1999b, p.5). These priorities deal with questions of occupational restructuring and reskilling of interest to this project. In effect, emerging skill needs are being assessed for whether they should be picked up through public funding mechanisms (TAFE, competitive funding and user choice) or left to the private (fee-for-service) market.

The methodology in the rolling plans takes in training indicators, such as priority industries and output measures, industry employment and forecasts, skill demands and shortages, the amount and adequacy of existing training, training products and markets, regional socioeconomic factors, and so on.

In the New South Wales VET plan, the Department of Education and Training (see NSW BVET 2000) develops regional VET profiles for each of nine regions. These profiles identify emerging regional VET issues, inform central policy and planning processes and the regional purchasing strategy. They cover regional industry and employment and projections, demographics, current VET activity, training needs and skill gaps, and regional training issues. New South Wales also publishes (20) industry VET profiles, each identifying skill shortages by region, and giving industry overviews with information on the target groups for training and the factors required for an effective training market.

In addition to the NSW State plan and its underpinning regional and industry profiles, NSW TAFE notes that each TAFE institute has its own operational and educational plan, based rather more on course fields of study than on industries or occupations. Each institute has access to local industry data and online access to the student information system for up-to-date information on institute, college, program, and course, enrolment numbers. This is enrolment information that, in due course, would be reflected in national data collections compiled and published by NCVER.

The *Western Australian State training profile 1999–2001* (Department of Training WA 1999) delivers a broad treatment of VET system priorities by industry, and priority areas for occupational or industry-specific training. This is followed up by discussion of the regional priorities, in terms of demographic, economic, labour market, industry, and VET, change drivers. The industry and regional priorities are expanded into separate industry and regional profile documents. These profiles go to some lengths to justify the training responses in terms of the employment–industry forecasts and the change drivers.

The Victorian VET plan (OTFE 1999b) is supplemented by a *Planning guide for providers* (OTFE 1999a), which offers industry trend analyses of productivity and employment, VET delivery, apprenticeship commencements, and student contact hours. A measure of student contact hours per industry employee is derived. This is found to vary greatly by industry.

Table 3: Examples of State VET plans, State VET industry and regional plans, and their use of training indicators, 1998–2000

State and VET plans	Contents and training indicators	Comments
VET NSW 2000 Plan	• Summarises strategic directions, initiatives, shifts in training activity in the (19) ANTA industry training areas.	
• NSW industry VET profiles 2001–03	• Contain skill shortages by numbers and regions, industry overviews, target groups for training, factors for effective VET market, etc.	• Priorities and recommendations for industry VET
• NSW regional VET profiles 1999–2000	• Contain region industry–employment profiles, demographics, current VET activity levels, training needs and skill gaps, training issues, etc.	• Linked to regional VET purchasing strategies
Victorian TAFE Plan 2000	• Summarises actions against national priorities, shifts in training activity X 19 industry training areas.	
• Victorian Planning Guide for Providers of TAFE 2000–02	• Offers policy and planning context and industry trend analyses (productivity, employment, VET funding, apprenticeship commencements, contact hours, etc.).	• A measure of contact hours per industry employee is derived
	• Also offers industry training needs advice, primarily based on ITAB advice.	• Industry advice suggests changes in direction of training efforts, if any, by skill level and by region
Queensland 2000 VET Plan	• Summarises actions against national priorities, shifts in training activity X 19 industry training areas.	
• Queensland 2000 Industry Training Plans	• Cover industry definitions, entry-level and other training priorities, training drivers and issues, priority recommendations.	
• Queensland Resource Priorities 2000/2001–2002/2003	• Contains, by industry, a summary of: regional employment, regional key (training) points, targets for TAFE grants + competitive purchase + user choice + fee for service, training products, and training markets.	

Table 3: Examples of State VET plans, State VET industry and regional plans, and their use of training indicators, 1998–2000 (cont.)

State and VET plans	Contents and training indicators	Comments
WA State Training Profile 1999–2001	• Details VET system priorities (lists of occupation and industry skill needs) for industry groups. Summarises State training profile 1999–2001 and the expected shifts in effort, by hours and by enrolments.	• More detail on system priorities and skill needs than most State-level VET plans
• WA industry profiles	• The 14 industry profiles identify existing and emerging skills and training needs. They highlight 'change drivers' (technological, economic, social, government, labour market) for VET. The overview for each industry includes desired training outcomes, VET system responses, forecast occupational growth and potential for new jobs.	• Industry forecasts, and rationale for VET responses, given in some detail. Profiles combine data analysis, industry needs analysis, and VET stakeholder comments.
• WA regional profiles	• The nine regional profiles contain regional labour market overviews, demographics, economic and industry development indicators, training provisions and priorities by industry group.	• The profiles combine data analysis, industry needs analysis, and VET stakeholder comments.
SA State Strategic Plan for VET 1998–2000, and 1999 update	• The plan and update give broad statements of the planning context, the demand for training from industry and other clients, the supply of training (including the shifts in training activity by discipline), and the strategies for improving training (mapped against ANTA key result areas).	
• SA plans include industry profiles and training priorities	• Industry profiles signal annual % increases or decreases or in public VET funding. Training priorities derive from consideration of employment prospects, structural-cyclical influences, and skill shortages.	• Industry profiles and priorities based on industry training plans from ITABs.
• SA plans include regional training priorities and advices	• In 15 regions, identified are priority industries–occupations, growth areas, and skills needed for growth.	• Advice from regional development boards and other stakeholders goes into regional priorities.
Tasmanian VET Plan 2000	• Sets down strategic directions, goals, industry directions and priorities, VET in Schools, purchasing arrangements, training activity and shifts.	
• Tasmanian plan includes industry directions and priorities 2000–02	• Contain industry training issues and priorities, skill imbalances and proposed actions.	• Separate industry VET plans are also published.

Note: The table serves only to illustrate and compare recent State VET plans and their industry–regional dimensions and indicators. States will vary their approaches to VET plans and indicators will vary from year to year. Current State VET policies and plans may be tracked via the ANTA web site at <www.anta.gov.au>.
The table does not include Territorial VET plans. It does not cover (unpublished) TAFE institute plans and planning processes. States usually have a slightly higher number of institutes than regions.

As a variation on other States' emphases on regional training profiles, the Victorian planning guide employs industry training profiles, which then have a regional component. These profiles include a set of industry training needs advices, driven by ITAB input, which are directed at TAFE institutes and other training providers. These advices suggest changes in direction (increase, maintain, decrease, or new course) by industry, skill level and region.

Victorian planning officials note that the advices are directional, rather than numerically precise, because of the planning practicalities of incremental (rather than wholesale) changes in courses from year to year. They note that subsequent VET plans, while maintaining a similar methodology, will sort the regional profiles into separate documents. Victorian VET planning may also have to respond to recent recommendations (Kirby 2000) for regional planning networks in post compulsory education, including VET.

The Tasmanian VET Plan (OVET Tasmania 1999) also takes an industry-first approach, including a set of industry directions and priorities 2000–02. In their turn, these industry priorities take up the regional dimensions of skill needs.

The impression is that industry is the dominating concept and main organising unit in national and State VET planning. In practice, this is deceptive, especially since, as one draws closer to the regional or institute level, States tend to plan more around courses. These may be aggregated in terms of fields of study (a concept of the course's major vocational outcome and content) or discipline groups (a concept of the course's primary educational content, not vocational or industry context). In practice, the 19-tier plans provided to ANTA are parallel to rather than central to the actual planning process.

At regional and institute level, and in the short run, planning is more a business of incremental adjustment than of wholesale change. It could be said that courses and their levels of provision are the given which is adjusted from year to year according to the observable changes in (regional) supply and (industry) demand.

In the current climate of market testing for many public services and programs, including VET itself, a noteworthy aspect of State VET planning is the substantial amount of organisational memory and expertise maintained over the recent years (DEWRSB is similar). States do, however, vary in the size of their planning teams and the extent to which VET planning and purchasing autonomy (and skills) are devolved to regions and institutes.

Having their own organisational expertise, and their own sources of supply and demand data, States may need to be convinced of the merits when new approaches to VET planning and training indicators are proposed.

VET evaluation and indicators

The training indicators used for evaluation of VET plans and VET stocks tend to be dissimilar to the indicators used to establish the plans in the first place.

As one example, the 1998 report (ANTA 1999a) does not attempt direct assessments of the accuracy of industry forecasts used to allocate VET funds, or the resultant adequacy of VET supplies in keeping VET stocks up to desired levels (KPM 2).

Putting it into the context of this project, the report is limited in its assessment of VET responses to changing industry, skill and demographic trends.

At present, the ANTA reports rely on a generalised analysis of the VET supply side (the qualification profile of Australian industry and against international profiles) and the demand side (the overall labour market and output and employment trends by industry and occupation). The pertinent findings are that VET occupational funding shares continue to be in line with occupational employment shares and that unmet VET demand is relatively stable.

The evaluation of VET stocks could be said to service a particular VET clientele—ANTA and its Commonwealth stakeholder, DETYA. By virtue of their policy roles, these agencies will have a keen interest in the outcomes against the KPMs. By virtue of their national positions, they do not have a singular focus on any one jurisdiction and lack direct access to the kinds of dedicated sources of training indicator data that States and Territories have.

States and Territories do not mirror the ANTA planning grid or KPM 2 in reporting against their own VET plans. They are more inclined to plan and report against the annual national priorities set each year under the ANTA *National strategy 1998–2003*. States tend not to publish evaluations of the effectiveness of their various kinds of industry and regional training sub-plans, although there is no doubt that informal evaluation of one year's plans is part of the industry and regional consultation and formulation of the next year's plan.

Recent NCVER (2000a, 2000b, 2000c) analyses of auto, electrical and mechanical trades show how there can be a continuum between evaluative and forward planning approaches in VET.

These papers, in common with *Australian apprentice and trainee statistics 1998* (NCVER 1999b) and other trade analyses summarised earlier in this chapter, use the measure of apprentices relative to employed tradespersons. This is said to be currently about 10%, or closer to 15% in auto trades. However, recent apprentice growth is taken to suggest that the percentage may rise in the near future. In other words, training information about the present and recent past can be helpful in making informed estimates of the situation in the near future.

Practice—themes

This survey of work suggests that, whatever the influence of the large-scale national forecasting and benchmarking exercises that have taken place in VET recently, training indicators of one kind or another have always managed to hold a respected and useful place in VET policy and analysis. There is a sense of organisational continuity and expertise in State VET planning work, as there is in DEWRSB work using training indicators.

In the work examined, it is as if there are two or three broad schools of training indicator thought, although these often merge in practice. The most straightforward approach, exemplified by DETYA, and other, career and course programs, might be called a *careers-course directory*. Facts and descriptions of training courses, jobs or occupations are put together, sometimes with the addition of qualitative impressions of job prospects.

The most widespread approach is what might be termed a *demand–supply synthesis of training*. This is represented by the DOLAC work and also by the recent ANTA and State VET planning paradigms. The youth transition work, although it is something of a special case, is related. Its concern is to examine whether the worthwhile job and skill outcomes for young people clear the market in terms of the ongoing supplies of young people.

In the demand–supply synthesis, a range of quantitative and qualitative demand-side indicators for certain groups, industries or occupations including:

- overall economic trends, employment numbers, employment trends, structural and cyclical trends, emerging skills and skill gaps, changing government and regulatory requirements, wages and conditions, levels of replacement demand, and so on

is compared to a similar range of supply-side indicators for the same groups, industries or occupations (or fields of study related to the industries or occupations) including:

- labour force and demographic trends, training investment levels, training activity and trends, training pathways and flexibility, unemployment rates, upskilling, and migration

From the synthesis of the demand and supply sides, a judgment arises about the likely training needs and balance of supply and demand in the future. In the youth transition case, there is also a special concern about the needs and futures of those young people who appear to fail, or who are excess to the supply–demand equation.

Another influential approach, found in the DOLAC work, particularly in the DEIR and GCCA examples, and also in recent NCVER papers, is what might be termed *derived measures as training indicators*. Distinctive measures (such as rates of training, employment rates or salary rates) of the balance of supply and demand are applied comparatively to groups of occupations (their new graduates) and groups of industries over time.

There are various motivations for the work examined. Particular influences are training policy, career and vocational guidance, job placement needs, immigration policy and skilled migration, and general advice to employers and industry.

With the wisdom of hindsight evaluation, numerically based approaches (for example, of DOLAC, by DEIR for careers and immigration purposes, by Office of ACT Administration, by GCCA) can be said to have been workable and useful. At times, these approaches appear to have ebbed and flowed through no particular faults in their own quality, but rather more because of changes in overall government policy preferences or because of internal organisational preferences.

Nonetheless, the persistence of the DEIR (DEWSRB) occupational and GCCA careers programs is suggestive of strong underlying community needs for training indicators in job and career information. Also of interest, and a factor in the resurgence of the DEWRSB program, is the enabling influence of information technology for training indicators.

The recent developments in indicators for VET planning and VET evaluation, particularly KPM 2, are significant.

States usually have a broad annual VET plan applying funds to the ANTA (19) industry training areas, or to a broad discipline grid. This plan is usually based on employment (and perhaps) output forecasts; it may include syntheses of supply and demand; and it may identify priority industries, occupations and skills.

The State VET planning processes (see table 3) commonly have a second level of public or semi-public industry or regional training plans, guided by a range of demand–supply indicators and with substantial ITAB input. States use these subplans to express regional and industry–occupation skill priorities, to suggest regional demand shifts and shifts in training provision, and to express State purchasing priorities by industry or occupation. Institutes will also have plans, which express, in terms of courses, disciplines or fields of study the programs required to give effect to industry and regional planning priorities.

Industry or regional subplans may use a range of quantitative and qualitative regional training demand and supply indicators. The demand side may be represented by industry training needs, priority industries and output measures, regional socioeconomics, regional employment, industry employment, industry forecasts, industry training levels compared to employment levels, and so on. The supply side may be represented by demographics, qualification profiles, qualification or skill gaps, volumes of training funds, proposed training purchases, volumes of training, and so on.

At the national level, evaluation against KPM 2 proceeds by a general comparison of the VET supply side (qualification profiles) and demand side (labour market and output-employment trends). States tend to plan against a more specific set of indicators and to report against the annual national priorities set each year under the national strategy.

Issues and directions

This chapter discusses the policy and practical issues that may impact on the further development of a range of indicators to assist policy-makers and training providers to identify new areas of training demand and reskilling.

Where appropriate, reference is made to the commentary of relevant Commonwealth and State employment or training departments and other agencies. These are cited in the acknowledgments.

The national planning background for indicators

National VET planning is essential background to the further consideration and development of training indicators. Important statements of the national VET planning framework are ANTA's national strategy (ANTA 1998a) and key performance measures (ANTA 1999d) for 1998–2003.

The strategy has been summarised above. Its five objectives relate to equipping Australians for work, enhancing labour market mobility, achieving equitable outcomes, increasing investment in VET, and maximising the value of public VET funding.

Training indicators have the potential to serve all of these objectives, particularly maximising the value of public VET (efficiency and effectiveness), achieving equitable outcomes, and equipping Australians for work (choice and flexibility in learning pathways).

Linked to the first objective, the strategy calls for training providers to respond to changing client needs with quality, tailored products and for school students to have accurate and balanced career and course information. The analysis in the second chapter points to the gaps between university-type career and course information and VET or schools information, although the VET sector has instituted consumer surveys since 1995.

Linked to the fourth objective, the strategy takes it that the skills and knowledge of the Australian workforce lag behind other countries on most key measures. Indicators of youth transition are prominent in the debate on these key measures.

As noted, there are eight KPMs for the VET system. This project is directed to a range of training indicators for VET, and to the implementation of KPM 2, stocks of VET skills against desired levels.

In the second chapter it is shown that, from DOLAC in the 1980s through to ANTA today, the issue that is now represented by KPM 2 has been an important and useful instigator for national work on training indicators.

Also of significance is the issue now represented by KPM 4, student employment outcomes and prospects. Information on VET graduate employment outcomes (KPM 4) is also relevant to the measurement of how well the system is performing against KPM 2.

The project calls for identification of the range of training indicators that will help to interpret changes in training demand arising from industry, skill and demographic changes. In the following chapter, it is argued that the useful range of indicators will relate to a number of the KPMs, including KPM 2 and KPM 4.

The place of indicators in the VET planning process

In the second chapter, training indicators are seen to have an important place in youth VET planning and national and State VET planning. One group of industry training indicators (industry employment forecasts and also detailed regional-industry indicators work) has a key role in determining national and State VET plans and funding allocations. A related set of supply–demand indicators is used to assess performance under KPM 2.

As NSW TAFE (Planning) and DETE SA (VET Strategy) note, the planning grid used for the broad allocation of annual VET resources operates on a rather different level from the planning processes used for more detailed allocation of resources down at regional and TAFE institute level.

The survey of State VET plans confirms that a substantial amount of regional training analysis (in terms of priority industries and occupations, growth areas and skills needed) finds its way into the State planning processes.

As one commentator (Miles Morgan) put it, an effective indicators approach would need to be part of the loop. This means that the advice in indicators should lead to decisions and allocations, hence to performance and implementation, then on to feedback and the next round of advice.

An issue here is that there appears to be limited formal or public assessment of the accuracy and usefulness of (the up-front indicators used in) the national and State planning processes. That is not to say that there is not substantial consultation on one year's plans in the formulation of their successors.

The market for training indicators

The issue here is that training indicators ought to develop in accord with known or reasonably inferable demand.

Training indicators appear to be in the nature of a complex public good rather than a simple commodity with many buyers and sellers of standardised products. In that sense, they are not dissimilar to VET itself.

That point taken, there is evidence of persistent demand for training indicators for VET and youth policy, job placement needs and vocational guidance. These needs continue to be met mainly through public agencies and programs, but the extent of the demand lends support to the idea that there is a market for training indicators.

Since 1995, important public sector developments in training indicators are the resurgence of *Job outlook* for job placement and career needs, the inception of employer and student surveys in VET, and the more intensive use of training indicators for VET planning. A commercial development is the *Good universities guide*, whose brief is universities and university courses but which also contains a general treatment of State VET systems and comparative information on their fields of study (but not, thus far, their institutes).

While the focus here is on training indicators for VET policy and providers, enterprises and individuals may also represent significant markets for training indicators.

NCVER, by virtue of its charter (see NCVER 1999a), is already a national compiler and producer of training indicators for VET policy, especially VET statistics, apprenticeship and traineeship statistics, and student outcomes. States have other needs for up-to-date regional, industry, and institute, data in their VET planning. Some of this data may be sourced from NCVER and some from State industry or occupational forecasts, State enrolment systems, other local research, ITAB and stakeholder consultations.

The uneven history of receptiveness to training indicators suggests that it would be prudent to market-test further public sector developments for desirability and applicability to the presumed consumers, especially where these are training providers.

Needs and gaps for training indicators

Further development of training indicators which align to some degree with the most pressing needs and gaps is an important issue here.

Arguably, there is a corrective need for common (cross-sectoral) national evaluations for, and indicators of, the youth transition issues. Existing ANTA reporting emphasises the Finn targets for 19 and 22-year-olds, rather than giving deeper analyses of remedies for young people's situations should these targets (as appears likely) fail to be met for a significant minority of 19-year-olds. If anything, with the increasing average age of the Australian workforce, the needs of older workers are more prominent in reporting against KPMs and key result areas. It is known (Robinson 1999) that older workers have gained significantly more than younger workers in the post-1995 growth spurt of apprenticeships and traineeships.

Similarly, there appears to be a need for better evaluations against KPM 2—stocks of VET skills against desired levels—and this might bring into play broader sets of supply and demand indicators (training indicators).

The view taken here is that prospective training indicators for State and regional VET planning, the levels at which the important practical decisions about VET resources and courses are made, are also areas of need for exploration and improvement.

Indeed, the analysis here suggests that training indicators have developed thus far with more of a view towards the requirements of government, enterprises and individuals. With the deregulation of the training market, and diversification of

training programs and pathways, it is reasonable that the information needs of regions and training providers should come closer to the fore.

Comments from State training agencies and planners at the TAFE institute level suggest that these needs are assuming greater prominence. If institutes, however, are genuinely to have greater autonomy to plan, then a greater need for devolved planning skills and planning information is implied. The extent of such devolution varies considerably around the States.

A related point is that States appear to give greater prominence to regional training plans (profiles) than to institute plans, which do not appear to be as readily available in the public domain.

To some extent, this is a commercial matter, given that TAFE institutes are now in competition with other VET providers for parts of their total funding bases. Institute plans could become a source of attention and contention among providers and stakeholders in relation to their shares of the VET funding pie.

On the other hand, institutes and institute planning may benefit from giving greater public expression to what their colleges propose (subject to variations) to give to local communities from year to year, and the indicators on which their proposals and allocations are based.

While there is a substantial public emphasis on national and State VET planning and plans, this appears to diminish the closer the observer moves to the regional, institute and community levels. But these are probably the levels at which information might well attract the greatest interest and feedback from significant VET clients (including enterprises and individuals).

Related to this, there are gaps in readily available indicators about VET providers (comparative information on service quality and outcomes) and in persuasive information on VET-related careers for school students.

The conservatism of the VET system in this regard can be seen as principled, especially in an environment where there is increasing pressure for simplistic university (and school) performance ladders. However, as James (2000) suggests, in the absence of any better information, secondary students may continue to form their own (negative) impressions of VET possibilities in relation to university education options.

Existing sources of performance data such as the student outcomes survey, if taken down near to the institute level, may be pushing the boundaries of statistical reliability and usefulness. However, these sources could be improved over time, and augmented by other sources of qualitative and quantitative information on institutes.

Useful classifications for VET planning and training indicators

The issue here is one of useful, practical frameworks for training indicator work, which would meet the diverse needs of policy-makers and training providers.

Leaving aside youth transition indicators, much of the existing work on training indicators is pitched at national and State levels, and is in effect carried out by

teams in organisations such as NCVER, State training authorities, DEWRSB, GCCA and so on. Some training authorities maintain somewhat larger VET planning teams than others.

To go beyond the existing work, whether by industry and occupation or by region and provider, would require careful planning in terms of who might conduct the work and at what level of detail it could be resourced.

The ANTA planning grid uses 19 industry training areas, which roughly resemble (but are not in fact) ANZSIC industry divisions. A similar quasi-industry grid is used in the ANTA KPM 2 evaluations of the last 2–3 years.

Ultimately, the statistics that fill out national and State industry training area grids are compiled by assigning VET courses to Australian Standard Classification of Occupations (ASCO) (ABS 1997) categories. This process is fraught with inconsistencies, partly because the majority of courses are not tied to a contract of employment.

To use an industry grid for the further development of training indicators, it is probably necessary to go to the ANZSIC industry division level. Another common approach is to use industry divisions, although the grid is usually expanded out to industry subdivisions when the industry division under consideration is manufacturing. This means between 20 to 30 categories altogether.

In total, there are nearly 100 industry subdivisions in ANZSIC. It would be a daunting task to develop and maintain training indicators for *all* of these. It is not something that has ever really been attempted in any of the examples given in the second chapter.

To develop training indicators according to occupations, as DEWRSB does, the tested approach is to use the ASCO unit group level, which roughly corresponds to individual internal labour markets for individual (skilled) occupations. It is probably necessary to have at least 100 and perhaps 200 occupations for a labour market-wide analysis. DEWRSB is now going close to 400 occupations in its analysis, but this includes many so-called semi-skilled occupations. Given the workloads involved, and recalling DEWRSB's demand-side portfolio responsibilities, it is hardly surprising that the DEWRSB analysis is limited in its treatment of the supply side of this large number of occupations.

A simplified occupational approach, targeting the trades sector, is to focus on trades and related occupations. That would only involve about 15 ASCO minor groups and 65 unit groups (occupations) but would not do justice to the breadth of VET provision for a range of middle-level occupations in short courses. Also, historically, the trade occupations and their supply-demand conditions vary significantly within the minor groups.

Neither is the analytical framework particularly simplified by focussing primarily on regions or providers. States and Territories, for example, use 50 or more regions for indicative VET planning purposes. To divide up the regional market another way, Australia has about 85 large TAFE institutes that pick up the bulk of the public VET market, and many hundreds more private providers deliver public VET programs. (South Australia is unusual in that, nominally, it has fewer institutes than planning regions.)

Evidently, any fresh efforts to develop useful training indicators at State and regional level have the potential to be highly resource-intensive.

A common-sense approach is to relate training indicators to the present frameworks and methodologies of ANTA and State VET planning. An understanding of the way allocations are made through these frameworks is crucial for training providers in an increasingly competitive market.

As discussed, VET planning and the corresponding evaluations appear to be broadly industry-based at the national and State levels but are actually more field of study or discipline-based as one moves toward the institute level. Most States maintain their institute-level plans with the aid of national (or State-adapted) study or discipline classifications.

Billett and Hayes (2000) query the persistent emphasis on industries and enterprises in VET planning. They mount a strong argument, particularly in the context of regional VET planning, that occupations or vocations represent a very useful organising concept for VET demand. They do not, however, demonstrate that the industry concept should be discarded in favour of occupations, or that such a shift would lead to a more egalitarian or whole-of-career model of VET planning.

In 2000, an ANTA project has been examining the possibilities of re-organising the VET planning supply grid along the lines of discipline groups (the SA approach) or other kinds of industry groups (in effect, these might well be industry training package groups).

Evidently, discipline groups and fields of study are central to VET planning and reporting. Whether formally or informally, they are important concepts in State, regional and institute-level VET planning. They are basic classifications and organising concepts for key VET publications, including the annual national report, produced by NCVER.

While the central classifications used in the VET planning grids may change, there will always be a need to relate the provisions back to employment and industry. Employers, industries and governments are keenly interested in the amount of training provided to their favoured strategic industries, and in the variations from year to year.

If they are to be relevant, training indicators cannot avoid the untidy problem of measuring educational provisions against changing industries and industry skill needs.

The planning and measurement problems might be simplified if the VET system organised courses and the supply side of VET plans consistently around disciplines (a non-vocational concept), fields of study (a quasi-vocational concept), or training packages (a quasi industry-vocational concept). However, the likelihood is that more than one of these concepts will continue to be used and useful at national and State levels.

Disciplines are integral to the national training information standard of the Australian Vocational Education and Training Management Information Statistical Standard (AVETMISS) (ANTA 1998c, 1998d). At present, published NCVER statistics may relate to any or all of disciplines, fields of study, or units of competency from training packages. The proposed Australian Standard

Classification of Education (ASCED) comprises all of these concepts as well as level of education (study).

In the Billett and Hayes paper, industry is portrayed as a centralising, enterprise-dominated building block for the demand side of VET planning and indicators. It can also be perceived as a flexible organising concept for a VET system that, by definition and by policy intent, is increasingly directed to employment-oriented, modular, skill outcomes and lifelong learning as well as formal qualifications and vocational outcomes.

The usefulness of forecasts and other training indicators

Recent studies, while diverging on the usefulness of industry-occupational forecasts, nominate lists of training indicators that overlap to a greater or lesser degree.

Blandy and Freeland (2000) list over 20 indicators that might be used at the broad occupational–industry level. These include variables such as employment, forecast employment, unemployment levels, vacancy levels, labour sources, recruitment and retention, qualification profiles, wages, rates of investment and rates of market change, and so on. The authors suggest that occupation–industry databases be maintained centrally by ANTA or NCVER, and also locally (for local inputs) by agencies such as ITABs and TAFEs.

Burns and Shanahan (2000) urge that micro-level information and occupational forecasts be used as principal training indicators. They endorse the value of timely information on changing labour market conditions, especially where this is 'highly disaggregated' (Burns & Shanahan 2000, p.v) and identifying likely imbalances in occupational labour markets rather than simply attempting employment forecasts. However, it is acknowledged that extant Australian econometric models do not model either supply for VET or likely imbalances.

Other indicators valued by Burns and Shanahan include: workforce outflows, population by age and sex, net migration, changes in participation, projections of skills in labour supply, effects of occupational substitution, changes in wage relativities, and time lags to overcome supply–demand imbalances. The authors put a heavy weight not only on projected labour market imbalances, but also on the extent to which they require public sector interventions. This is a critical point—the use of comparative training indicators does not imply that the distribution of VET dollars must be equalised or normalised in some way across all industries or occupations.

Billett and Hayes (2000) offer a contrasting planning model. They recommend occupations as an important organising concept for national and regional VET planning. Their approach to planning at the regional level is consensual and indicative rather than industry and forecast-intensive. Hence, the authors tend to have a shorter list of key regional factors, as it were, to be used in planning. These include type of industries, employment opportunities (for VET participants), educational provisions, and demographic factors.

While practices vary from State to State, the approach to VET planning and the indicators used are closer in spirit to the Blandy or Billett models and somewhat removed from the Burns and Shanahan model, which contends that State VET systems should have more in-house expertise in economic analysis and forecasting. State VET planners and DEWRSB do not readily accept that the forecast-intensive model is a realistic alternative to present methods, which synthesise (industry) forecasts with a range of other quantitative and qualitative indicators.

Some objections are discussed in Blandy and Freeland (2000). The Victorian VET planners note that the forecasts themselves, in common with many other training indicators, cannot escape an element of subjectivity in the compilation of their necessary inputs. There is no strong conviction among practitioners that the forecasts are accurate or useful beyond the level of broad industry or occupation aggregates, which is the finding in a recent United Kingdom review (Haskel & Holt 1999) of three national occupational–industry forecasting exercises since 1976. Practitioners tend to value the forecasts as stimulants and guides to thoughtful analysis and planning, rather than as a writ for the plans themselves.

Another pertinent objection is that, even if the forecasts could be fine-tuned to detailed industry, occupation and regional levels, this would not necessarily lead to the most effective responses in VET provisions.

The presumed exactness of the modelled employment forecasts would seem at odds with the incremental and approximate nature of real-world planning adjustments to courses in VET regions and TAFE institutes. 'The most unsatisfactory aspect', as Dumbrell (1995, p. 259) notes, 'of our present use of model-generated forecasts is the reliance on employment trends as a proxy for likely training demand'.

To some extent, it can be argued that the VET system and its institutes are there to respond faithfully to stated or forecasted needs and demands of industry. However, as South Australia (VET Strategy) points out, persistently reported skill gaps and skill shortages in trades sometimes relate to industrial relations issues (wages and conditions). Such shortages may not be resolved readily through increasing investment of scarce public VET funds.

While accepting the responsive role, institutes can also be said to have leading and anticipatory roles in working with industry, enterprises, and individuals to develop creative skill mixes and skill solutions for continually emerging skill needs in the labour force and industry. The introduction to the VET sector of the open market, and user choice among TAFE institutes and other VET providers, can be said to intensify this anticipatory role.

With differing demographics and differing industry structures, skill solutions that fit an industry in one region may not fit the same industry in another region of the same State. This creative role of VET appears to be less well served by the mechanics of the micro-level industry and occupational forecasting model.

Resourcing the work of training indicators

The practicality of various classifications for and approaches to training indicators highlights a related issue, the practicality of resourcing and managing training indicators over time. Training indicators have to be disaggregated and analysed to a

reasonably high degree to in any way represent the complexity of regional and local VET markets, but the relative scarcity of planning resources and expert personnel may bring the process to a standstill if it is taken to technical extremes.

Highly ambitious approaches using economic modelling or benchmarking (Cullen) may tend to have limited impact, not necessarily because the methodology is unsound but because the work is too highly labour-intensive or too complex to follow up or evaluate over time. The more expansive projects may falter and create planning discouragement through lack of ongoing resourcing and evaluation. Provided they are not trivial, work programs more attuned to the planning resources and skills realistically available may stand a better chance of being followed up and having a positive impact over time on the levels of quality and awareness in VET planning.

It has been noted that resources used by State VET systems and DEWRSB for training indicator work, while variable in size, do not appear to be very large when added together.

It is therefore important that the collegiate (Commonwealth and State) resources available to NCVER be used to best effect, in sustainable improvements to training indicators that complement the detailed work that States will continue to perform for regional and institute planning. The history of uses and successes in training indicators suggests that it will always be a challenge to strike a reasonable balance.

The aptness of training indicators for the VET climate

One idea identified in this report is that of changing policy and program preferences over time for training indicators as a prime means of implementing labour market planning and VET planning. Another is that, despite these changing preferences, a solid core of organisational expertise and work in training indicators has continued.

One prompt for this report was the need to find alternative ways and means of addressing KPM 2, ways different from the international and national comparisons approach that peaked with the ANTA workskills benchmarking reports of 1997–98 (Cullen 1997a, 1997b, 1998).

Using simple statistical analyses, Schofield's independent (1999a, 1999b, 2000) reviews show that the period after 1995 was also one when States' VET systems were being stretched by the sharply rising quantities and falling quality of traineeships. Similar points were being made in earlier departmental papers—for example, that of Smith (1998) in the case of Queensland.

The problems may have been addressed earlier, with less need for major external review, if less ambitious (but not less rigorous) forms of VET planning and indicative measurement had been in the national ascendancy.

Training indicators could also play a part in VET planning for the period 2000–05. Although there may not be the same levels of growth in VET funding and enrolments, or apprenticeships and traineeships, the system will still be under pressure to deliver the quality and diversity of skill outcomes that are implied by the five national VET objectives.

It is likely that partial failure to meet Finn targets will keep up the pressure for improving VET outcomes for young people, who have struggled to maintain their share of apprenticeships and traineeships. As Schofield (2000) notes, there will also be continuing pressure to deliver employment outcomes through employment-based training. In 1998, the Commonwealth established an entirely new national network of training intermediaries, New Apprenticeships Centres, whose prime purpose and commercial goal is to facilitate employment-based training.

Employment-based training is rather less than 25% of an average State's VET enrolment profile, or rather less than 50% of enrolments for certificate II qualifications or higher. However, a high proportion of public concern and scrutiny of the VET system relates to employment-based training.

Schofield (2000) and Kirby (2000) note the historical importance of VET, and its potential future role, in middle and advanced-level skills and qualifications outside and beyond apprenticeships. Curtain's earlier (1996) paper makes a similar plea. NCVER analyses for National Industry Skills Forum (for example, Electrotechnology Working Group 2000) confirm the importance of non-apprenticeship pathways, even in traditional apprenticeships areas. ANTA (2000a) has issued a report on alternative pathways to qualifications in the trades.

In this environment, training indicators appear to have relevance in the disciplines of VET planning for 2000–05. They may provide suitable measures to assess prospects and performance in a system that faces policy stresses and may continue to face diminishing growth in resources. They may provide flexible measures to examine critically the adequacy of VET responses to changing industry, skill and demographic requirements.

Proposals for improvements in training indicators

This chapter develops the issues and directions into proposals for improvements in training indicators.

The first chapter described the two main elements of the project brief. The first was the development of a range of indicators to assist policy-makers and training providers to identify new areas of demand; and the second was to progress the implementation of KPM 2, stocks of VET skills.

Both these elements are considered, as are better prospects for the dissemination of training indicators.

Good practice in the use of training indicators

The consideration of recent practice suggests that the context for training indicators—the 'why, when and how' of their use—is as important as the 'what' of their content. Their popularity has varied over time, and they operate in a VET policy and planning context where there may only be certain markets for their use to fill certain needs and gaps.

For these reasons, responses to the project brief should be preceded by a consideration of the elements of good practice in improving training indicators.

This is relevant to the work of agencies such as the NCVER and the ABS, which is that of research and reporting, but also relevant to agencies such as State training authorities who may be responsible for VET planning. Both types of agency face similar challenges in striving for best practice.

Apart from NCVER, the review of recent practice discloses a range of producers of 'training indicators' that are or could be used in VET planning. These include the ABS, key economic forecasting units, DEWRSB, State training agencies, ITABs, training providers, and so on. In VET planning, there are variable levels of awareness and use of these different sources. For example, they could be profiled more often at key VET forums. There may be value in greater networking (at State levels and below) to ensure that planners are aware of successive issues of information and their potential uses or misuses.

It would seem logical to develop training indicators that are pitched to the mainstream of national and State VET planning, but which also respond positively to the increasing importance of planning decisions made at regional levels for enterprise and individual client needs.

A systematic review (Embleton et al. 1999) of the United Kingdom training and enterprise council (TEC) planning practices for VET found high regional variability in TEC skill and excellence, especially for planning inputs and indicators related to

workforce, business and enterprise development. There do not appear to be comparable studies of good practice across the Australian VET planning regions, such as they are. It can only be said that the degree of planning devolution and the practices vary as does the quality and timeliness of data available.

To make sustainable improvements in training indicators, it is necessary to respect the limitations of (economic, labour market, and training) data and to recognise that the development of more reliable and useful products makes considerable demands on organisational continuity and skill. The long history of the DEWRSB and GCCA work is evidence.

Good practice (table 2) in training indicators may use several different assessments of the demand side and of the supply side and often will make a considered effort to compare or measure the supply side against the demand side.

This kind of practice can increase the probability of correct inferences and good judgments about VET training and investments and reduce the possibilities of poor judgments based on the use of insufficient or inappropriate indicators. To give examples, it would not necessarily be good practice to change the institute level of training provision in a course solely on the basis of industry training advisory body input, or solely on the basis of State-level VET graduate outcomes.

With the use of a variety of supply-and-demand assessments to make supply–demand comparisons, greater possibilities also arise to use training indicators to study and answer important questions that may arise from KPM 2 and from changing patterns of VET demand and supply.

An important practice, not always strongly in evidence, is the deliberate evaluation of the training indicators for applicability and accuracy. Related to that is the idea of a feedback loop whereby training indicators evolve consistently according to ongoing feedback from the VET system and other clients. The current situation is that VET planning and subsequently VET evaluation, whether at national or State and regional levels, proceed on somewhat different conceptual tracks using somewhat different sets of indicators.

Blandy and Freeland (2000) touch on another useful practice, that of widening the availability of training indicators. Increasingly, online dissemination, an option that was not really practicable 20 years ago, can play a part. The easy option is to put entire publications online. Recent and present data sets (such as employment levels or enrolment levels) can also be circulated online, with the possibility of interactive inquiry and analysis.

Developing the range of training indicators

Evidently, there is a spectrum of views about the best organising concepts and classifications for training indicators, and especially about the extent to which they should be forecast-intensive.

Views on these issues will always be evolving. It is as important to apply good practice to the use of training indicators as it is to strive for the ideal set of indicators.

Nonetheless, there is some consistency about the features of training indicators that have been used fruitfully over time by Commonwealth and State departments of

employment and training, are being used more recently by national and State VET planners, and are recommended by recent studies.

It may be partly a question of pulling together heavily used indicators (for example, employment levels and enrolment levels) with those that appear relatively under-used (for example, VET outcomes and VET market shares) and urging greater use of derived measures or direct demand–supply comparisons.

It is also a question of recognising that the most useful sets of indicators, while maintaining some consistency in approach and content, will undergo shifts in detail and emphasis as one moves from national through to State and region and institute-level planning. To give a single example, both the national and regional planner would be interested in VET job outcomes. For better or worse, the localised planner may instinctively prefer local VET job outcomes intelligence to inferences drawn from national student outcome data.

Table 1, which appears in the executive summary, is a selection of training indicators, demand side, supply side, and comparative demand–supply, that could be used for improving assessments of changing VET demand at national, State and regional levels. It is assumed that the indicators will often need to be applied to particular industries, or, alternatively, to industries, disciplines and fields of study.

On the demand side, the indicators in table 1 relate to (industry) productivity, employment and strategic importance, industry characteristics and needs, replacement demands, job outcomes and trends; and on the supply side to VET funding, training providers and pathways, training activity, trends and market shares, other supply sources and demographics. The comparative demand–supply measures may compare productivity, strategic importance, and employment on the one side to VET funding, enrolments and completions on the other. They may derive indicators of market shares and market opportunities.

Evidently, this list comes with a number of provisos. It is a generic set. As noted above, the most useful selection of indicators and comparisons, and the precise statistical or research sources, will vary, depending on whether the assessment has a national, State or regional (institute) focus.

The list combines items that are readily quantified or commonly forecasted (employment and enrolment levels) with items that are not so, but are more likely to be derived by survey of industry or of training providers. The list combines a variety of demand, supply, and derived demand–supply measures. The second chapter shows that these are useful ways to get practical results and derive useful policy inferences over time.

The list introduces derived measures that attempt to measure the state of the market, to identify necessary changes in training direction, and to identify training (purchasing) gaps and opportunities. These kinds of measures seem more appropriate for the diversified market of recent years. Although they are qualitative, it may still be possible to evaluate whether or not the suggested changes in direction have been followed and with what degree of success.

The list presumes that similar sets of indicators can and should be used consistently for forward planning as well as for review and evaluation. The suggestion is that both VET reporting and VET planning agencies can gain by studying the present and recent past as a guide to the future, using consistent sets of indicators.

The list is not entirely predicated on KPM 2. A useful range and variety of training indicators, to deal with changing VET demand, will tend to pick up elements of other KPMs; for example, KPM 1 (skill outputs), KPMs 3 and 4 (employer responses and student outcomes), and KPM 6 (public expenditure per public output).

Important questions in the project brief concern the adequacy of responses to changes in training demand—arising from new areas of training, reskilling needs, demographic changes and associated labour market adjustments. The implication in table 1 is that these types of questions can be addressed by the persistent application of derived measures comparing demand and supply, qualitatively as well as quantitatively.

The subtext in the table is that it, in so doing, is not always possible or appropriate to compare like with like.

It would be very tidy, for example, to compare State or regional industry demand and industry supply. Underlying the present ANTA review of the VET planning grid is the problem that industry supply is not well defined in the VET sector. Neither is occupational supply as easy to define as it may have been 20 years ago, in a labour market of rapidly shifting skill mixes and rapidly evolving (modular, competency-based) VET skill responses.

Planning and measurement should follow national VET policy rather than lead it. At times it may be more practical to accept, as institute planners have to, the necessity and usefulness of continually comparing changing educational provisions to changing industry, regional or occupational demands. The challenges of making meaningful supply–demand comparisons at regional levels will only increase as distance learning and open learning increase.

Finally, developing the range of training indicators should not be uncoupled from the range of strategies for implementation and dissemination.

Improving the implementation of Key Performance Measure 2

Stocks of VET skills against desired levels, KPM 2, is one of eight KPMs recommended in the formative report of the Performance Review Committee (ANTA 1999d).

The report concedes that there are no exact answers for KPM 2 but argues that it is 'directly related' to the goal of VET, the creation and maintenance of a national pool of skilled Australians sufficient to support internationally competitive commerce and industry.

The ANTA report proposes that the required data for KPM measurement falls into three categories—measurement of VET skills (primarily about qualification and skill profiles by industry), comparison of current against desired stock (primarily about modelling and measuring industry demands and shortages for skills), and international benchmarking (our qualification profile against other countries).

A related way of addressing the problem is to unpack KPM 2 into linked topics that may respond to intensive and timely analysis using training indicators.

The topics can be analysed using a variety of supply–demand indicators and supply–demand comparisons. This approach may well draw in indicators that, in formal terms, belong to other KPMs.

The third chapter argues the relevance of training indicators for the current VET climate, following on from recent youth transition concerns and reviews of the quantity and quality of traineeships.

Youth transition concerns cannot be restricted solely to the VET system and its KPM 2 since, in formal terms, they go beyond ANTA to DETYA matters such as quality and inclusiveness of schooling and the post-secondary education system generally.

However, a co-operative effort to measure youth transition (and the VET contribution to transition) more effectively would offer a better perspective on the overall effectiveness of VET in furnishing adequate stocks of VET skills to meet changing demographic needs.

At least, adequate measures of youth transition need to examine the duration of transition, the extent of use of VET and other post-secondary pathways, major skill and labour market outcomes for those making the transition, and degrees of skill and labour market difficulties experienced by those failing to make an adequate transition. It may also be useful to compare the Australian youth transition outcomes to those for the OECD.

Other lines of KPM 2 inquiry in relation to the adequacy of VET system responses to changes in training demand, might be:

- Will VET continue to deliver the various mixes of skills required for the growth of various industries and for the achievement of individual careers?
- Is the VET system responding to strategic market opportunities and emerging skill needs through visible adjustments of funding profiles and course profiles?
- Is the development of the training market leading to diversity of market share among training providers and training pathways in order to provide multiple pathways to skills for diverse industry needs?
- Is the amount of VET training and skilling, especially for trades and qualifications, measurably sufficient for replacement, or growth and replacement, in key industry sectors?
- In what ways, and how successfully from year to year, is the VET system responding to skill gaps and skill shortages identified by governments, industries and regions?

One way to address these questions is to apply and re-apply training indicators (past, present, and future; by industry, occupation or region) until a consistent analysis appears to emerge. Similar methods are found in recent NCVER papers (for example, Electrotechnology Working Group 2000, NCVER 2000a, 2000b, 2000c) already cited. The key result area evaluations employed by States are also similar in intent, although they are less concerned with the measurement of outcomes.

For question (1), for example, the analysis might first examine broad trends in training providers and enrolments, followed by the more specific measurement and analysis of enrolment trends (by levels of qualification, by apprenticeships and other pathways, training packages, modules, completions, and so on).

The patterns and trends of skill acquisition may be analysed against the patterns of industry employment and demand, this leading to an assessment of the adequacy of the amount and mix of skill provisions, and an analysis of the drivers or impediments that affect different providers and their pathways to skills. In turn, this may lead to an assessment of the extent to which the different pathways in the skill mix are being used by different groups in the community seeking skills (especially those affected by restructuring).

Ultimate goals of the chain of supply–demand comparisons might be the highlighting of emerging areas of imbalance in the skill mix, directional or incremental changes in the different types of training activity in the skill mix, or the identification of training gaps and opportunities for providers. Similar approaches can be developed for questions 2–5.

An aspect of the approaches proposed here is that they are intended to have a broad conception of the clients for VET and for the analyses of VET. These include policy-makers, training providers, enterprises, communities and individuals.

Improving the dissemination of training indicators

This section considers prospects for the better dissemination of training indicators, by ANTA, NCVER, and other bodies, to facilitate meeting VET planning and vocational (career) planning needs.

From the published VET plans, discussions with DEWRSB, and VET and institute planners, the impression is that NCVER, with better dissemination of key research findings, and by improving the timeliness, accessibility, interpretation, range, and content of the training indicators now available in key VET statistical and outcome publications, could have a more substantial impact on VET planning processes and decisions.

A VET supply–side digest is the recognised format of useful NCVER publications. Examples are those on student outcomes (NCVER 1999d), VET statistics (NCVER 2000d) and TAFE and university graduates (NCVER 2000f). Similarly, on the demand side, *Job futures* (DEWRSB 1999) summarises industry and occupational prospects at a glance.

What might be useful to diverse VET clients—policy-makers, training providers, industries and enterprises—would be some form of VET digest that makes the effort to consider the supply side in the context of the demand side.

Such a digest might summarise and discuss a range of VET–supply (including NCVER) and VET–demand (that is, non-NCVER) indicators and their implications. It could elaborate the VET implications of national and State trends in employment, industries, student outcomes, job outcomes, training providers, student and enrolment numbers, apprenticeships and traineeships, package or module enrolments, and so on. For major industry groups, it could possibly compare the demand side to the supply side in a similar manner to that of table 1.

This concept is best considered in conjunction with parallel needs for improvements in the KPM analysis (above) and in core NCVER statistical work on enrolments, apprenticeships and traineeships, and student outcomes.

Given its relatively recent origin, the analysis and interpretation in the student outcomes publications stand up well to that of the enrolment and apprenticeship publications.

For greater impact on State and regional VET planning, the timeliness and quality of interpretation in these latter publications can be improved, particularly in terms of identifying critical enrolment trends, relating enrolment trends to broad labour force and employment trends, and developing the regional and provider implications of the analysis.

The kinds of analysis found in occasional, lengthier NCVER industry (1998a, 1998b) and training (2000a, 2000b, 2000c) publications could become part of regular practice. The challenge is to strike a practical balance between the span and usefulness of the analysis and the resources required for its maintenance over time.

Billett and Hayes (2000) recognise that the student outcome surveys already provide for VET planners useful summary data on the main regional industry destinations of VET graduates. The surveys also enable numerical estimates of graduates and module completers by field of study and industry of employment, these being increasingly important training indicators.

Despite its advantages, and its large sample size, the VET student outcome series (rather like the DEWRSB occupational analyses) is not particularly widely used by VET planners. This may be because the VET series is of recent origin, compared to the well-established outcome series for university graduates. Some users would prefer to be able to access VET job outcome data more directly and reliably at regional (industry–occupational–institute) levels. However, this would stretch the present cost and technical envelopes of the surveys.

Like the enrolment and apprenticeship collections, the student outcomes surveys have a time lag of some months between the date of the observations and their publication. These limitations may reduce the impact of NCVER work on established, budget-driven, annual cycles of State and regional VET planning.

As well as NCVER material, VET planners can use information banks that include enrolment data from State information systems, local compilations of ABS employment and industry data, State and regional industry employment forecasts, State or regional surveys of industry skill needs and shortages, and so on. Some of this data (enrolments) may be close to real time, while other data may have time lags similar to that of NCVER material.

User-friendly, online development of key NCVER material (relating to providers, enrolments, contracts of training and skill outcomes) could lead to greater influence at the level of regional and institute VET planning.

This is a different way of putting training indicators into a digest. The costs and risks are higher. The earlier discussion of best practice warns against the development of VET indicators in isolation from the evaluation and feedback loops.

However, there could be substantial benefits for NCVER and for the quality and information-inclusiveness of VET planning at regional levels. DEWRSB's recent effort in revitalising its occupational analysis research for an online presentation (DEWRSB 2000b discussed in the second chapter) is an example of what can be done.

If policy-makers, enterprises and training providers deserve informed, topical training information and indicators, then, as the National Strategy acknowledges, so do school leavers and other prospective VET clients.

In the second chapter, the range and coherency of VET student information is compared to the relative abundance of student information now available in the universities sector, which tends to be the first choice of school students. The previous chapter discusses the relevance of enhanced VET information (in schools) to the national strategy and the logical links between improving system information and improving system performance under KPM 2 and associated measures.

If, overall, VET student and careers information is assessed as moderate in quality, it is not for want of potential providers. NCVER surveys the job and salary experiences of VET graduates and module completers. State VET systems have TAFE directories and provide online information on apprenticeship opportunities and other VET career options. DETYA New Apprenticeships Centres promote apprenticeships and traineeships. Some career information for VET-related occupations is provided by the DETYA careers program and by DEWRSB through *Job outlook*. Comparative, although limited, information on VET student outcomes is derived from the student outcome surveys and published in *Good universities guide*.

The VET system might well review the various providers and products to make a concerted effort to improve the range and quality of VET careers information available. Some combination of NCVER student VET outcomes and systemic State VET information might offer a good base.

It would be consistent with the approach in this paper if greater efforts were made to integrate and compare the supply-and-demand-side information in the form of relevant training indicators. The experience with *Careers WA*, as noted in the second chapter, is a reminder that these things can be done in a useful manner. Also, recent improvements in the quality of university information available, and continuing evidence of mixed senior-school attitudes towards TAFE, suggest that there is every reason for VET careers information to work towards more definite indicators and comparisons on individual institutes.

Summaries and suggested actions

So far in this report, the project background, the policy environment, the practice of training indicators, issues and directions, and proposals for improvements have been discussed. This concluding chapter summarises key points and suggests actions.

Project and policy summary

The aim of this project is to develop a range of training indicators to assist VET policy and providers to identify changes in training demand arising from industry, skill and demographic changes.

The project examines critiques of various approaches to measuring the adequacy of the stock of VET skills, which is a KPM for the VET system as a whole. Another application of this project could be that ranges of indicators are proposed in (NCVER) magazines.

Training indicators are taken here to refer to quantitative and qualitative indicators of current or future VET supply and demand, potentially economic, social, labour market, vocational, and other indicators, which governments, enterprises, training providers and individuals utilise to guide decisions about training investments in skills, especially at the industry, occupational, regional and course levels.

The discussion of training indicators is set against recent developments in the training system and the training market. The semi-competitive VET funding model, the particular nature of VET as a public good, and the new diversity of training providers and pathways to skills, are taken to imply new demands for diverse training information to improve the operation of the market.

The national strategy and KPMs for VET are introduced, particularly in terms of their training objectives and training information requirements. The broad framework for national and State VET planning has been identified, including its use of industry and industry forecasts as broad indicators of funding allocations.

Summary of training indicators

From the 1970s, Commonwealth, State and other agencies have used training indicators for youth and training policy needs, skilled migration, job placement needs and vocational guidance.

Their work is grouped under the broad headings of indicators for youth transition, analyses and indicators for the trades, occupational analyses and indicators, indicators for vocational guidance and graduate outcomes, and ANTA or State VET planning processes.

Three broad streams of training indicator work might be identified. These are referred to as the careers-course directory (for example, the DETYA career guidance program), the demand–supply synthesis of training (DOLAC and later approaches to State VET planning, youth transition work), and derived measures used as training indicators (*Occupational outlook*, graduate destination surveys and NCVER work).

The second stream relates to current State VET planning processes. In general terms, this might include:

- indicators for the demand side in terms of overall economic trends, employment numbers, employment trends, structural cyclical trends, demographic demands, employment rates, emerging skills and skill gaps, changing government and regulatory requirements, wages and conditions, levels of replacement demand, and so on
- indicators for the supply side in terms of labour force trends, training investment and funding levels, training trends, training pathways and flexibility, unemployment rates, upskilling and reskilling, migration, and so on
- from the synthesis, judgments arise about likely training needs and the balance of demand and supply in the future

The demand–supply syntheses and the derived measures have been realistic and useful for policy and program improvements and for advisory purposes. Examples are the DOLAC analyses on supply and demand for the trades, DEWRSB's occupational (job) outlook analyses, DEWRSB's Occupational Shares System for migration, and the graduate careers (GCCA) surveys on university graduate employment prospects.

New initiatives of the 1990s create fresh possibilities for the use of training indicators in VET planning and vocational guidance. Outside the VET sector, the DEWRSB work has been refreshed and the *Good universities guide* has been developed. In the VET sector, new employer and student surveys have become integral to the VET system and its key performance measures.

Since the establishment of ANTA, the national and State VET planning processes have used a range of training indicators, including labour market and industry employment forecasts, to guide funding allocations and training investments.

States usually have a broad annual VET plan applying funds to the ANTA (19) industry training areas, or to a broad discipline-study grid. The broad plan is usually based on employment and perhaps on output forecasts. It may include supply–demand syntheses and may identify priority industries, occupations and skills.

The State VET planning processes commonly have a second level of industry or regional training plans, guided by a range of supply–demand indicators, which can express regional and occupational-industry skill priorities, suggest regional demand shifts or regional-industry VET purchasing priorities:

- the demand side might be represented by industry training needs, priority industries and output measures, regional socioeconomics, regional

employment, industry employment, industry forecasts, industry employment compared to training levels, and so on

- the supply side might be represented by demographics, qualification profiles, qualification or skill gaps, volumes of training funds, volumes of training, and so on

Published VET plans and their industry inputs create the impression that industry is the dominant organising concept of State and regional VET planning. TAFE institutes also have (usually unpublished) plans, expressed more in terms of the courses, disciplines or fields of study of the programs required to give effect to industry and regional planning priorities. Their planning tends to be a matter of incremental adjustment of courses to take account of observed changes in demographics and demand, not to mention observable outcomes during the actual planning periods.

At the national level, VET evaluation against KPM 2 proceeds by a general comparison of the VET supply side (qualification profiles) and demand side (labour market and output-employment trends). States tend to plan against a more specific set of training indicators and to report against the annual national priorities set each year under the national strategy.

Better practice would tend towards more visible evaluations of State (and regional) VET plans against what was planned or indicated in the first place.

Summary of issues and directions

In this section the issues and directions for training indicators are discussed in terms of the national planning background, the place of indicators in VET planning, the market for training indicators, needs and gaps, classification issues, forecasting and related issues, and the aptness of indicators for the VET climate.

The national strategy and the eight key performance measures for VET are taken as essential to directions and proposals. It is argued that training indicators have the potential to service the objectives, particularly those related to best value for public VET funds, and equipping Australians for the world of work.

In recent years, training indicators have often been developed to assess stocks of skills and client outcomes, issues which now correspond to KPMs 2 and 4 for VET. A useful range of training indicators for the future may relate to several of the KPMs.

A range of training indicators, and their demand–supply syntheses, are seen to be used widely in national and State VET planning and regional-industry VET planning. There appears to be limited formal assessment of the accuracy and usefulness of the indicators in developing successive plans, although informal consultation and evaluation are important.

The evaluations of national and State VET plans, and the indicators used, tend to follow different tracks from the processes and indicators used in the formation of the plans.

Training indicators are in the nature of a public good. There is persistent demand for these indicators for VET policy and planning, job placement and career

guidance needs. The inception of the VET employer and student surveys and their placement in a KPM framework make for significant changes in the importance and availability of training indicators.

NCVER responds to demands for training indicators with a range of VET student surveys and analyses, which States may use together with data from their own student enrolment systems, other statistical data and industry or stakeholder surveys.

With diversification and deregulation of the training market, there are important and increasing needs for training indicators directed to the regional and institute planning processes and decisions. There are reasonable arguments for greater openness and more information about institute planning and comparisons, but these are matters of contention.

There is debate and review of the most useful frameworks for VET planning and indicators. There may be changes in the broad ANTA planning grid of industry training areas, used to aggregate VET supplies. States may prefer to plan against disciplines, fields of study, or training packages (units of competency), all of these being important in NCVER statistics and current or intended supply-side classifications. At the region-institute level, there remains the practical necessity of relating course provisions to changing industry and skill demands.

Recent studies may diverge on the usefulness of micro-level industry and occupational forecasting, while nominating lists of preferred training indicators that overlap to some degree. Direct appeal to industry forecasts as a proxy for training demand is debatable, and the preference among State VET planners is to use forecasts as one substantial contribution to the plans and planning decisions. This seems reasonable if VET systems have leading as well as following roles in developing skills and skill solutions, and cannot always respond uncritically to reported or forecasted skill shortages by allocation of scarce VET funds.

Practical attention to the resources and personnel available in NCVER and State VET systems emerges as an important issue in making sustainable improvements in VET planning in the future. In recent years, the use of training indicators has been maintained over time and despite different fashions in VET planning. These indicators have addressed key questions of the 1995–2000 period, particularly the quantity and quality of traineeships. They could have an apt role over the period 2000–05, offering suitable measures to assess prospects and performance in a VET system under policy and resource stresses, and flexible measures to examine VET responses to changing industry, skill and demographic trends.

Summary propositions and suggested actions

The summary propositions relate to good practice in the use of training indicators, developing the range of training indicators, improving the implementation of KPM 2, and improvements in dissemination for greater impacts on VET planning.

Good practice in training indicators is put forward as a necessary part of proposals to improve their range and their implementation.

There could be improvements in the profiling of the key sources for training indicators and greater State and regional networking of training indicators' availability and their uses.

It seems most relevant to develop training indicators that respond to the policy context and the mainstream needs of national VET planning and evaluation and State VET planning, but also to the increasing importance (with diversification and deregulation) of regional planning decisions for enterprises and for individual needs.

There appear to be needs and gaps in training indicators at regional levels, and the extent of variability in quality of regional VET planning practices has not been studied closely.

Sustainable improvements in training indicators require intense organisational continuity and skill. Other elements of good practice include the use of a range of (quantitative and qualitative) supply-and-demand assessments and supply–demand comparisons, greater evaluation of training indicators for accuracy and usefulness, and greater consistency in the processes and indicators for VET planning and VET evaluation.

Within a consistent framework, the exact selection and emphasis of the indicators will change in shifts from the national to State and regional levels. It is useful to recognise that the supply side (courses) cannot always be equated neatly to the demand side (employment, industry and occupation) forecasts and indicators.

Suggested actions

For ANTA, States and Territories, NCVER

1. *Increasing the networking and exchange of training indicators*

   There would be value in greater profiling of training indicators at key VET forums, and more networking among the key producers of training indicators, to ensure that State and regional planners are aware of, and working effectively with, the most timely range of supply-and-demand indicators.

For ANTA, States and Territories

2. *Focussing training indicators on the VET planning mainstream*

   The prime focus for training indicators ought to be the mainstream of national VET planning and evaluation and State VET planning, but with increasing recognition of the importance of indicators for regional planning decisions in the diversified and deregulated training market.

For ANTA, States and Territories

3. *Evaluating regional VET planning practices*

   Recognising different State practices and preferences, consideration should be given to a comparative evaluation of regional planning practices, for the exchange of better practice and improvement in the comparative quality and availability of training indicators used.

For ANTA, States and Territories, NCVER

4. *Improving VET planning through good practice in training indicators*

   For sustainable improvements in the quality of judgments made over VET training and investment, it is good practice to use a range of VET demand and VET supply indicators, to compare and measure demand against supply, to continually assess the accuracy and usefulness of indicators, to use consistent processes and indicators for VET planning and VET evaluation, and to recognise that the supply side (courses) cannot be neatly equated to the demand side (employment).

There is a range of views about the best concepts and classifications for training indicators and the relative merit of intensive forecasting among indicators. However, there is a certain consistency about the features of training indicators that have been used over time in national and State employment and training departments, are currently being used in VET planning and are recommended in recent studies.

For particular industries and fields of study, a range of demand, supply, and demand–supply, indicators and measures can be identified which could be used for improving assessments of changing VET demand at national, State and regional levels.

Suggested action

For NCVER, States and Territories

5. *Assessing changing VET demand by using a range of demand and supply indicators*

   A range of demand, supply, and demand–supply, indicators and measures (see table 1) can be used to improve assessments of changing VET demand:

   - On the demand side, (industry's) productivity, employment, and strategic importance to the economy, industry characteristics and needs, replacement demand, job outcomes and trends could be utilised.
   - On the supply side, VET funding, training providers and pathways, training activity and trends, training market shares, other supply sources, and demographics could be utilised.
   - The demand–supply measures may compare (industry's) productivity, employment, and strategic importance to the economy, on the one side to funding, enrolments, and completions on the other. From this, indicators of market shares and opportunities could be derived.

In the formative ANTA KPM report of 1999, KPM 2, stocks of VET skills against desired levels, is seen to relate directly to Australia's maintenance of a pool of skills for internationally competitive commerce and industry. The report divides data for KPM measurement into measurement of VET skills (qualifications), comparing current and desired (industry) stocks, and international benchmarking (of qualifications).

In this report, training indicators are seen to be apt for assessments in the current VET climate and its policy and resource pressures, and apt for lines of inquiry under KPM 2.

In the particular case of the youth transition issue, a co-operative effort to identify common indicators to measure youth transition (and the VET contribution to transition) more effectively is recommended. This should cover the duration of transition, nature of transition pathways, skill and labour market outcomes for those succeeding and those failing to make adequate transitions.

Other linked KPM 2 topics are proposed. In each instance, it suggested that training indicators be applied and re-applied at increasing levels of detail until a consistent analysis begins to emerge. The goal would be to identify gaps, suggest changes, and recommend opportunities, in the skill mix and in skill provisions.

Suggested actions

For NCVER, ANTA, States and Territories

6. *Using training indicators to measure the responsiveness of the VET system*

   Training indicators have an apt role to play in the VET system over 2000–05, offering suitable measures for a system under policy and resource pressures, and flexible measures to examine system responses to changing industry, skill and demographic trends.

For NCVER, ANTA, DETYA

7. *Developing better indicators of the youth transition*

   A better perspective on KPM 2 could be obtained by agreement on, and co-operative development of, better measures of the adequacy of youth transition through VET and other forms of post-secondary education. This should cover transition duration, pathways, successful skill and labour market outcomes, and unsuccessful outcomes.

For NCVER, ANTA, DETYA

8. *Improving the analysis and measurement of KPM 2*

   KPM 2 can be separated into lines of inquiry which can be addressed and analysed with the use of training indicators. These relate to the adequacy of the skill mix, responsiveness to strategic skill needs, diversity of skills provision and pathways, adequate replacement of industry skills, and responsiveness to skill gaps in industry. For example:

   - Will VET continue to deliver the various mixes of skills required for the growth of various industries and for the achievement of individual careers?
   - Is the VET system responding to strategic market opportunities and emerging skill needs through visible adjustments of funding profiles and course profiles?
   - Is the development of the training market leading to diversity of market share among training providers and training pathways, to provide multiple pathways to skills for diverse industry needs?
   - Is the amount of VET training and skilling, especially for trades and qualifications, measurably sufficient for replacement, or growth and replacement, in key industry sectors?

- In what ways, and how successfully from year to year, is the VET system responding to skill gaps and skill shortages identified by governments, industries and regions?

Published VET plans, and discussions with State institute VET planners, imply that NCVER could impact more on VET planning by improving the timeliness, accessibility and interpretation of key publications and their training indicators.

Useful NCVER (and DEWRSB) publications separately summarise VET supply, and demand, training indicators at a glance. Diverse VET clients might appreciate some form of VET digest which brought the supply and demand sides together and compared them (after the style of table 1). Such a digest might draw out the VET implications of national–State trends in demand and supply indicators such as employment, industries, occupations, outcomes, providers, enrolments and training. It might use indicators to analyse youth transition issues from time to time.

The VET student outcome surveys have made good progress since 1995. They enable useful estimates of graduate and module completer numbers and industry shares of regional graduate destinations. The outcomes data might be used more widely if greater regional (industries and providers) detail were available.

Similarly, there could be greater impacts on VET planning with sustained improvements in the timeliness and interpretive quality of key enrolment and apprenticeship publications, in terms of identifying critical trends and relating these to labour force and employment trends, and developing the analysis for regions and providers. Occasional NCVER industry and training papers may be a useful pointer.

Key NCVER publications of training indicators are time-lagged and may be limited in their impact on budget or calendar-driven cycles of State VET planning. Moreover, States also have access to their own (possibly online) enrolment systems, other employment and industry data banks, and regional or industry surveys. While there are costs and risks, a user-friendly, online development of key NCVER training indicators could lead to their having a greater influence in State VET planning and regional VET planning.

The information needs of school leavers and other VET clients are acknowledged as important in improving system performance under the national strategy. Despite a range of potential and actual providers, the quality and inclusiveness of VET student and career information is only moderate when compared with recent progress in student information for the universities sector, which remains the strong first preference of school students.

The VET system might review the potential providers and products of VET student and careers information, with a view to proposing more influential and inclusive ranges of information and indicators. NCVER (highlighting student outcomes) and State (highlighting careers and courses) material may offer a good base.

Suggested actions

For NCVER, ANTA, DETYA

9. *Putting VET supply and demand indicators together to assist clients of VET*

   To give greater planning assistance to a range of VET clients, VET supply-and-demand indicators should be brought together in a digest considering (after the manner of table 1) the implications of recent trends in demand–supply indicators such as employment, industries, student outcomes, job outcomes, training providers, enrolments, and training.

For NCVER, States and Territories

10. *Enhancing the student outcome surveys for VET planning*

    The usefulness for regional and institute planning of the job outcome and destination indicators in the student outcome surveys could be more widely recognised and, being mindful of cost and technical issues, consideration could be given to expanding their regional (industry, provider) detail.

For NCVER, States and Territories

11. *Enhancing enrolment-apprenticeship indicators and publications for VET planning*

    Training indicators could have greater impacts on State and regional VET planning if the timeliness and interpretive quality of key enrolment and apprenticeship publications were improved, relating critical supply trends to labour force and employment trends.

For NCVER, States and Territories in discussion with training providers

12. *Developing online training indicators for VET planning*

    Noting the challenges of timeliness and relevance, a user-friendly, online development of key NCVER training indicators could increase the influence of these indicators in State and regional VET planning. There are greater costs and risks than (11) and such an option should be market-tested first.

For ANTA, NCVER, States and Territories

13. *Reforming VET student and careers information for VET system performance*

    Recognising the important leverage of VET student and careers information in improving system performance under the national strategy, the VET system ought to review its quality and inclusiveness of the information in order to develop a more influential and informed student careers voice. That should include working towards better institute information and comparisons.

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